

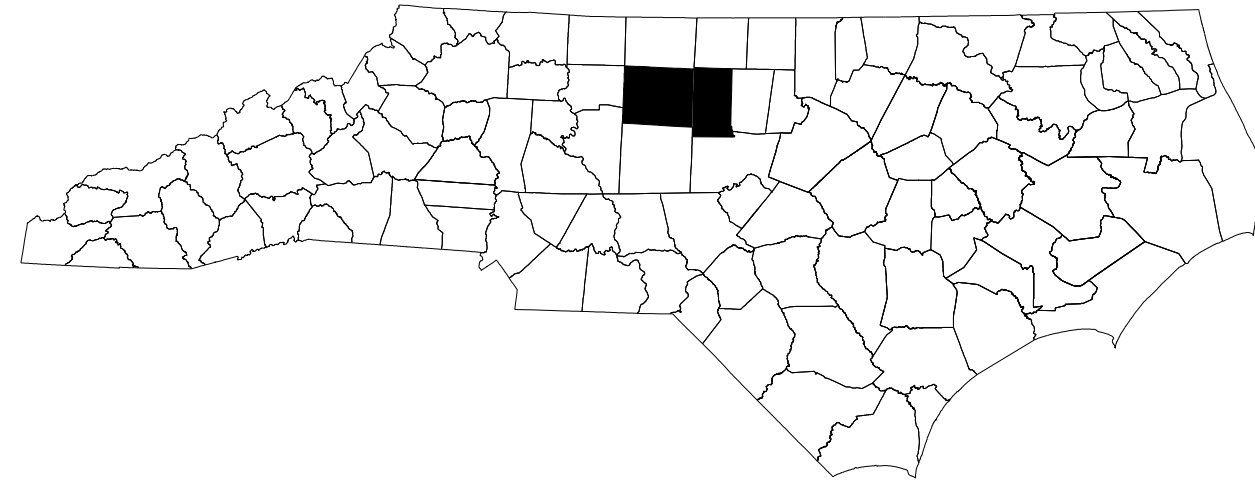
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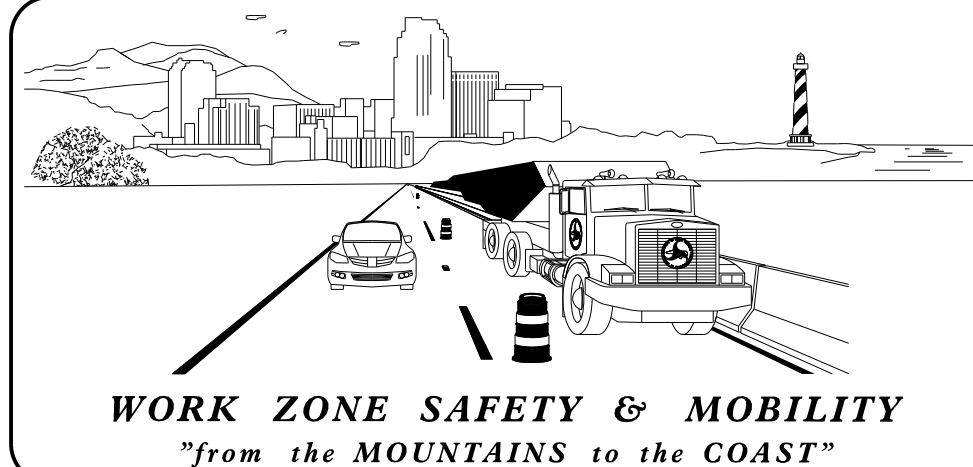
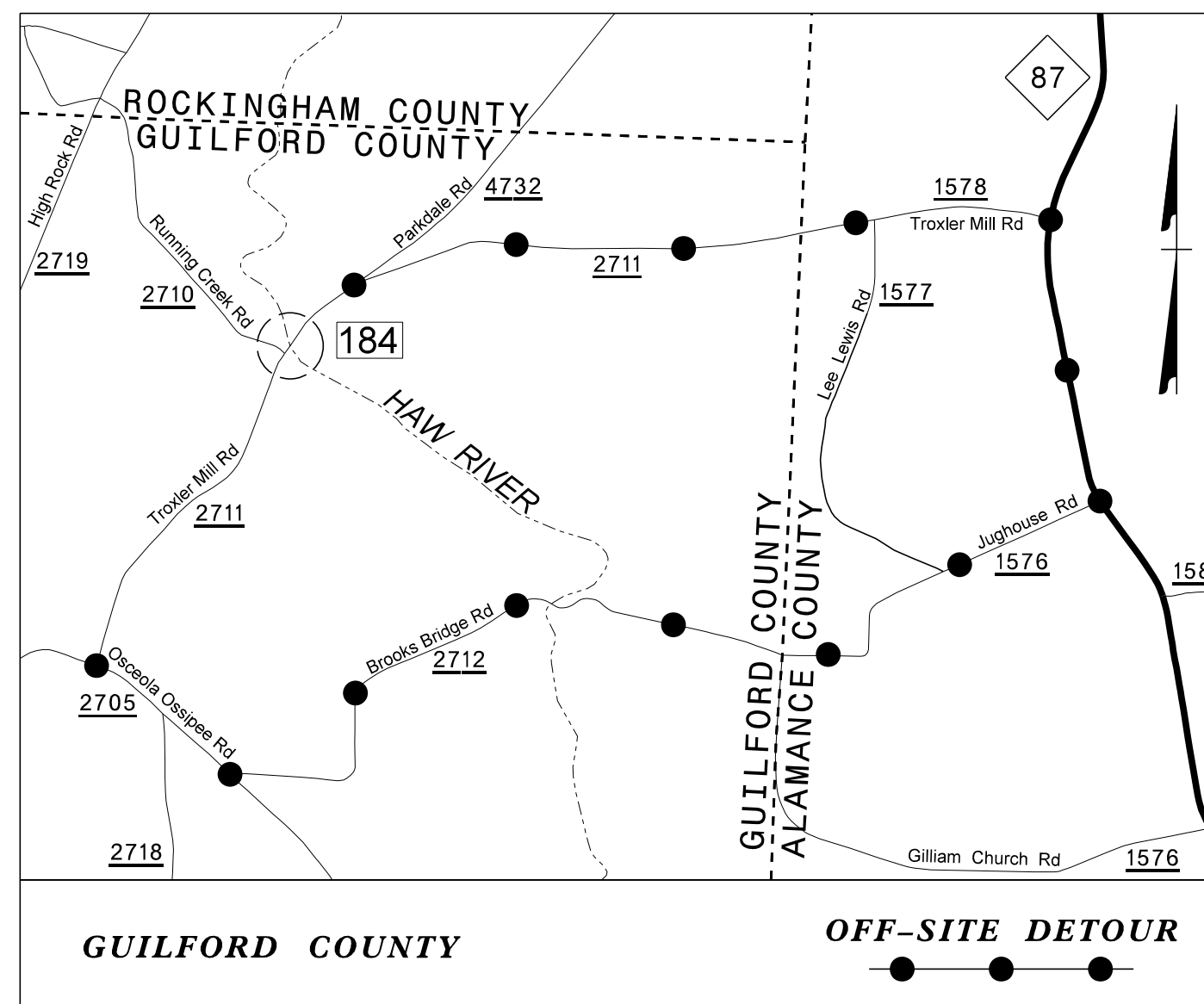
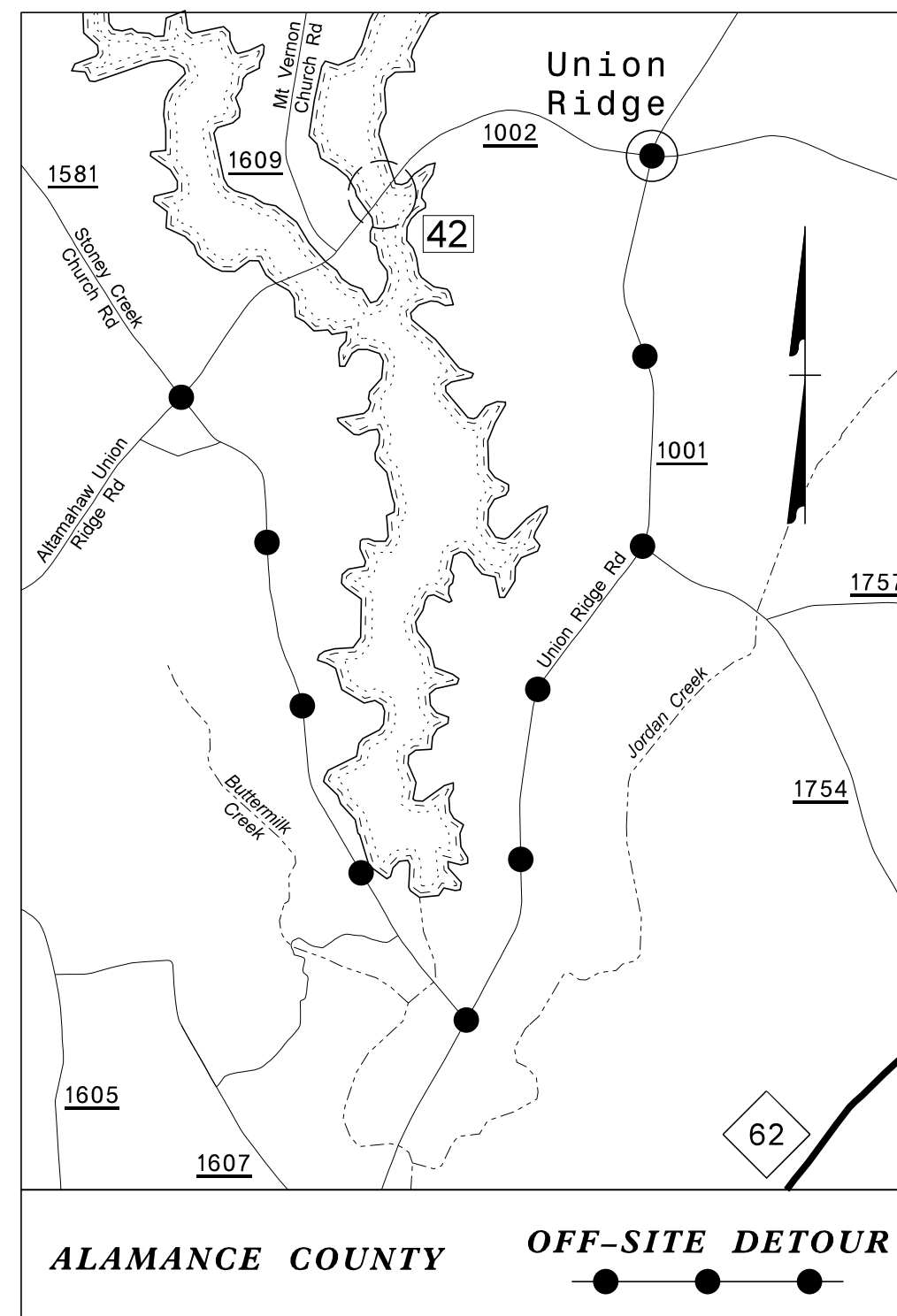
**This file or an individual page
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TRANSPORTATION MANAGEMENT PLAN

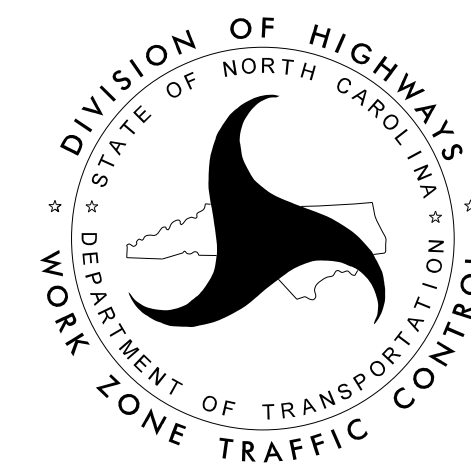
ALAMANCA & GUILFORD COUNTIES



TYPE OF WORK: BRIDGE PRESERVATION – SUBSTRUCTURE, DECK REPAIR AND PAINTING OF EXISTING BRIDGE STRUCTURES



J. S. BOURNE, P.E. *STATE TRAFFIC MANAGEMENT ENGINEER*
 DAVID BISSETTE, P.E. *TRAFFIC CONTROL PROJECT ENGINEER*
 MICHAEL STEELMAN *TRAFFIC CONTROL PROJECT DESIGN ENGINEER*
 KEN KENNEDY, P.E. *TRAFFIC CONTROL DESIGN ENGINEER*



SEAL



SHEET NO.

TMP-1

INDEX OF SHEETS

<u>SHEET NO.</u>	<u>TITLE</u>
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-2	SPECIAL SIGN DESIGN: ALTAMAHAW UNION RIDGE ROAD
TMP-2A	SPECIAL SIGN DESIGN: TROXLER MILL ROAD
TMP-3	PHASING
TMP-4	OFF-SITE DETOUR AND ROAD CLOSURE: BRIDGE #42 ALAMANCE COUNTY
TMP-5	OFF-SITE DETOUR AND ROAD CLOSURE: BRIDGE #184 GUILFORD COUNTY

BP-5500N

PROJECT:

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

- WORK AREA
- REMOVAL

- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

MANAGEMENT STRATEGIES

- THE OBJECTIVE OF THIS PROJECT IS THE PRESERVATION OF BRIDGE No. 42 IN ALAMANCE COUNTY AND THE PRESERVATION OF BRIDGE No. 184 IN GUILFORD COUNTY. THE PROJECT WILL BE COMPLETED USING A COMBINATION OF LANE & ROAD CLOSURES, AS WELL AS FOLLOWING THE REQUIREMENTS OF THE GENERAL NOTES & PHASING.
- ACCESS FOR LOCAL TRAFFIC MUST BE PROVIDED AT ALL TIMES WITHIN THE PROJECT LIMITS.

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIREED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
ALL ROADS	6:00 AM TO 9:00 AM, MONDAY THRU FRIDAY 4:00 PM TO 7:00 PM, MONDAY THRU FRIDAY

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAY AND SPECIAL EVENTS, AS FOLLOWS:

ROAD NAME
ALL ROADS

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR’S, BETWEEN THE HOURS OF 6:00 AM DECEMBER 31st TO 7:00 PM JANUARY 2ND. IF NEW YEAR’S DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN UNTIL 7:00 PM THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 6:00 AM THURSDAY AND 7:00 PM MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 AM FRIDAY TO 7:00 PM TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 AM FRIDAY AND 7:00 PM TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 AM TUESDAY TO 7:00 PM MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 AM THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 PM THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
SR-1002	6:00 AM MONDAY AM TO 7:00 PM FRIDAY

LANE AND SHOULDER CLOSURE REQUIREMENTS

- D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

TRAFFIC PATTERN ALTERATIONS

- I) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- K) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRANSPORTATION MANAGEMENT PLAN.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRANSPORTATION MANAGEMENT PLAN.
- L) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

M) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

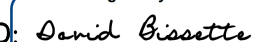
- N) WHEN LANE CLOSURES ARE NOT IN EFFECT, SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

PAVEMENT MARKINGS AND MARKERS

- O) INSTALL TEMPORARY PAVEMENT MARKINGS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
SR-1002	PAINT	TEMPORARY RAISED
SR-2711	PAINT	TEMPORARY RAISED

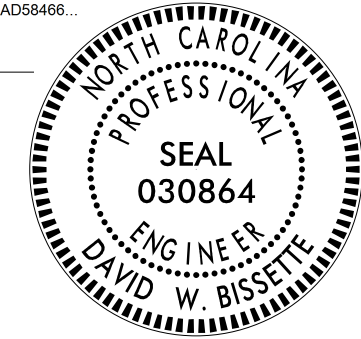
- P) PLACE ONE (1) APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX (6) MONTHS AS DIRECTED BY THE ENGINEER.
- Q) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- R) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS BY THE END OF EACH DAY’S OPERATION.


APPROVED: 

DATE: 2/5/2015

SEAL

DocuSigned by:
David Bisette
D34CEBF5AD58466





TRANSPORTATION
OPERATIONS PLAN

SIGN NUMBER: WZ1

TYPE: STATIONARY

QUANTITY: SEE PLANS

SIGN WIDTH: 4'-0"

HEIGHT: 2'-0"

TOTAL AREA: 8.0 Sq.Ft.

BORDER TYPE: INSET

RECESS: 0.5"

WIDTH: 0.5"

RADII: 1.5"

NO. Z BARS:

LENGTH:

BACKG COLOR: Fluorescent Orange

COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: AHG

PROJECT ID: BP-5500N

CHECKED BY: RBR

DIV: 7

Jan 13, 2015

4'-0"

2'-0"

14.3"

5"C

4.7"

3"

42"

3"

4.65"

5"C

4.7"

5"C

4.65"

14.3"

5"C

4.7"

ALTAMAHAW
UNION RIDGE RD

BORDER
R=1.5"
TH=0.5"
IN=0.5"

Spacing Factor is .75 for "UNION RIDGE RD" 1.0 otherwise

LETTER POSITIONS

Letter spacings are to start of next letter																									Series/Size		
		A	L	T	A	M	A	H	A	W																C 2000	
	7.9	3.9	2.8	2.9	3.9	4	3.9	3.5	3.5	3.8	7.9															32.2	
		U	N	I	O	N		R	I	D	G	E		R	D												C 2000
	3	3.6	3.6	1.5	3.7	2.8	3	3.4	1.5	3.5	3.5	2.6	3	3.4	2.8	3											42

FILENAME: Guidsign_English

NORTH CAROLINA D.O.T. SIGN DETAIL

I:\13\2015
R:\TIPR\Projects-BP\BP5500N\TrafficControl\TCP\BP-5500N_TC_TMP_02.dgn
User:drkennedy

APPROVED

DATE: 1/13/2015

SEAL

DocuSigned by:
Rou King
13E7AF7B9A4448...

PROFESSIONAL
SEAL
022959
ENGINEER
HOWARD W. KING

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

SPECIAL SIGN
DESIGN: ALTAMAHAW
UNION RIDGE ROAD

SIGN NUMBER: WZ2

TYPE: STATIONARY

QUANTITY: SEE PLANS

SIGN WIDTH: 2'-6"

HEIGHT: 2'-0"

TOTAL AREA: 5.0 Sq.Ft.

BORDER TYPE: INSET

RECESS: 0.5"

WIDTH: 0.5"

RADII: 1.5"

NO. Z BARS:

LENGTH:

BACKG COLOR: Fluorescent Orange

COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: AHG

PROJECT ID: BP-5500N

CHECKED BY: RBR

DIV: 7

Jan 13, 2015

2'-0"

14.3"

5" C

4.7"

2'-6"

3.25"

23.5"

3.25"

4.65"

5" C

4.7"

5" C

4.65"

TROXLER

MILL RD

BORDER

R=1.5"

TH=0.5"

IN=0.5"

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter																								Series/Size		
																								Text Length		
		T	R	O	X	L	E	R																		C 2000
	3.3	3.3	3.6	3.6	3.7	3.3	3.4	2.8	3.3																	23.5
		M	I	L	L		R	D																		C 2000
	4.3	4.4	1.8	3.3	2.6	3	3.7	2.8	4.3																	21.5

FILENAME: Guidsign_English

NORTH CAROLINA D.O.T. SIGN DETAIL

I:\13\2015
R:\TIPR\Projects-BP\BP5500N\TrafficControl\TCP\BP-5500N_TC_TMP_02A.dgn
User:drkennedy

APPROVED

DocuSigned by:

Ron King

13E7AF7B9A4448...

DATE: 1/13/2015

SEAL

NORTH CAROLINA

PROFESSIONAL

SEAL

022959

ENGINEER

RONALD W. KING

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

WORK ZONE TRAFFIC CONTROL

SPECIAL SIGN

DESIGN: TROXLER

MILL ROAD

PHASING

BRIDGE #42 - ALAMANCE COUNTY

ENSURE THE OVERSIZED / OVERWEIGHT PERMIT UNIT AT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.

COMPLETE THE REQUIREMENTS OF STEPS #1 THRU #5 IN FORTY-FIVE (45) CONSECUTIVE CALENDAR DAYS. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.

STEP 1:
USING FLAGGERS AND RSD 1101.02, SHEET 1 OF 15, BEGIN THE FOLLOWING:

- REMOVAL OF OVERHANG DIAPHRAGMS.
- SAWCUT AND CHIP OUT UNSOUND CONCRETE IN UNDERSIDE OF DECK AND BENT DIAPHRAGMS.
- PLATE STEEL I-BEAM ENDS, FLANGE REPAIRS AND STIFFENER REPAIRS.
- CLEAN / PAINT STEEL I-BEAMS AND BEARINGS.
- EPOXY INJECTION OF CONCRETE CRACKS.
- CLEAN AND REPAIR REBAR IN CONCRETE REPAIR AREAS.
- PERFORM SHOTCRETE REPAIRS IN PREPARED AREAS AND REPLACE OVERHANG DIAPHRAGMS.

STEP 2:
USING RSD 1101.03, SHEET 1 OF 9, TMP-2 AND TMP-4, INSTALL WEEKEND ROAD CLOSURES ON SR-1002 (ALTAMAHAW UNION RIDGE ROAD) AND DETOUR TRAFFIC OFF-SITE. AWAY FROM TRAFFIC, COMPLETE THE REMAINING BRIDGE PRESERVATION WORK REQUIRED BY THE STRUCTURAL PLANS. PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS IN THE ORIGINAL TRAFFIC PATTERN. OPEN SR-1002 TO TRAFFIC.

STEP 3:
USING FLAGGERS AND RSD 1101.02, SHEET 1 OF 15, COMPLETE THE WORK BEGUN IN STEP #1.

STEP 4:
PLACE FINAL PAVEMENT MARKINGS AND MARKERS IN THE ORIGINAL TRAFFIC PATTERN.

STEP 5:
REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

BRIDGE #184 - GUILFORD COUNTY

ENSURE THE OVERSIZED / OVERWEIGHT PERMIT UNIT AT (919) 733-4740 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.

COMPLETE THE REQUIREMENTS OF STEPS #1 THRU #4 IN THIRTY (30) CONSECUTIVE CALENDAR DAYS. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.

STEP 1:
USING RSD 1101.03, SHEET 1 OF 9, TMP-2A AND TMP-5, CLOSE SR-2711 (TROXLER MILL ROAD) AND DETOUR TRAFFIC OFF-SITE.

STEP 2:
AWAY FROM TRAFFIC, WORK IN A CONTINUOUS MANNER TO COMPLETE THE BRIDGE PRESERVATION WORK REQUIRED BY THE STRUCTURAL PLANS.

STEP 3:
PLACE PAVEMENT MARKINGS AND MARKERS IN THE ORIGINAL TRAFFIC PATTERN.

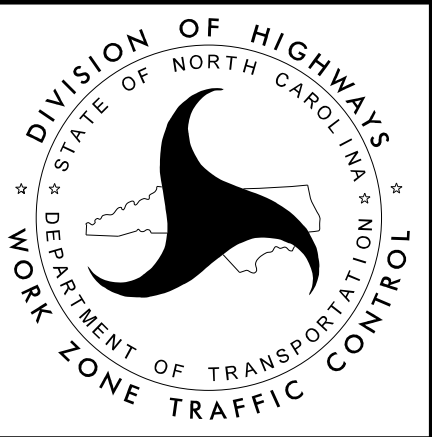
STEP 4:
OPEN SR-2711 (TROXLER MILL ROAD) TO TRAFFIC AND REMOVE ALL WORK ZONE TRAFFIC CONTROL DEVICES.

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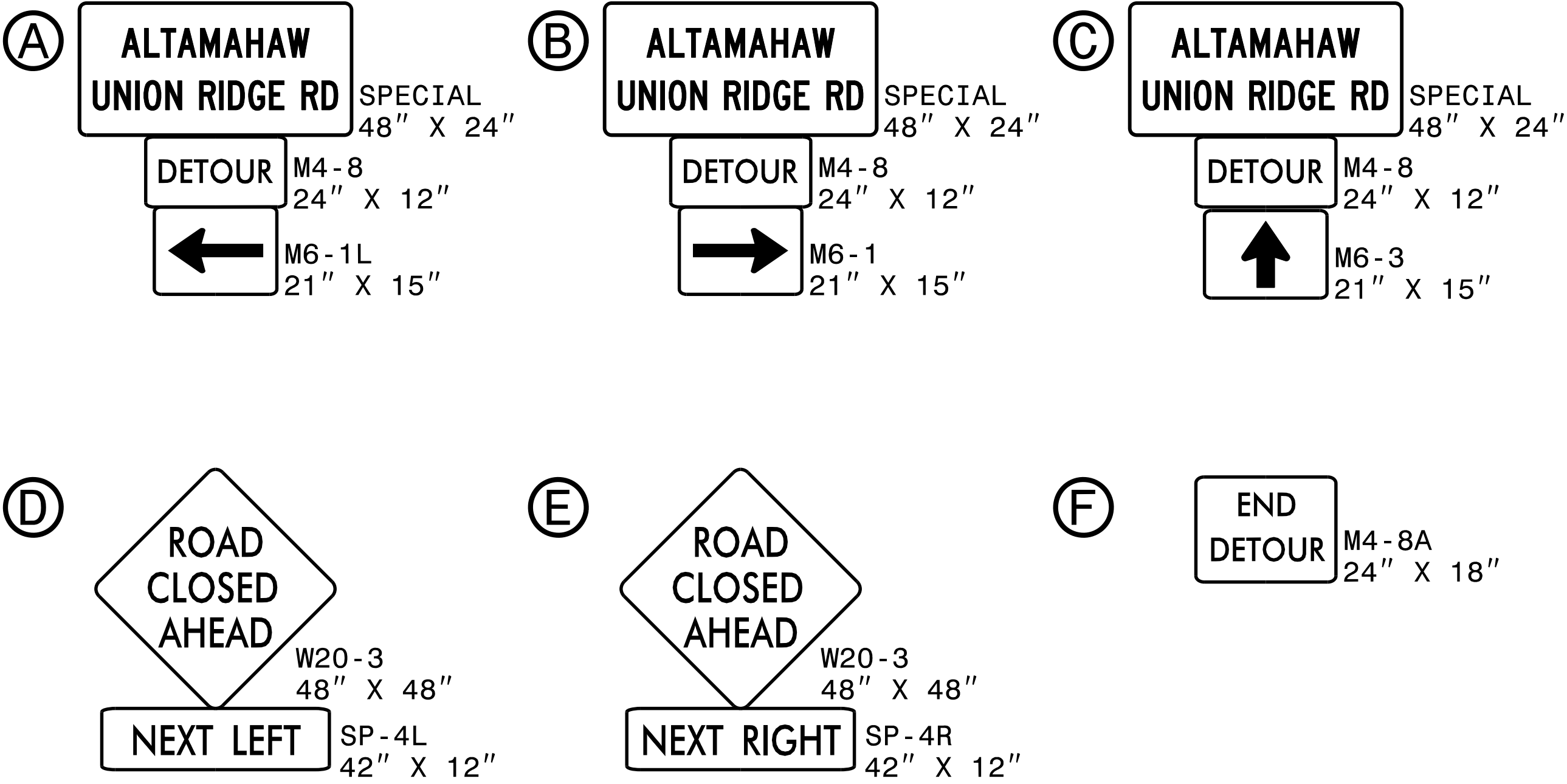
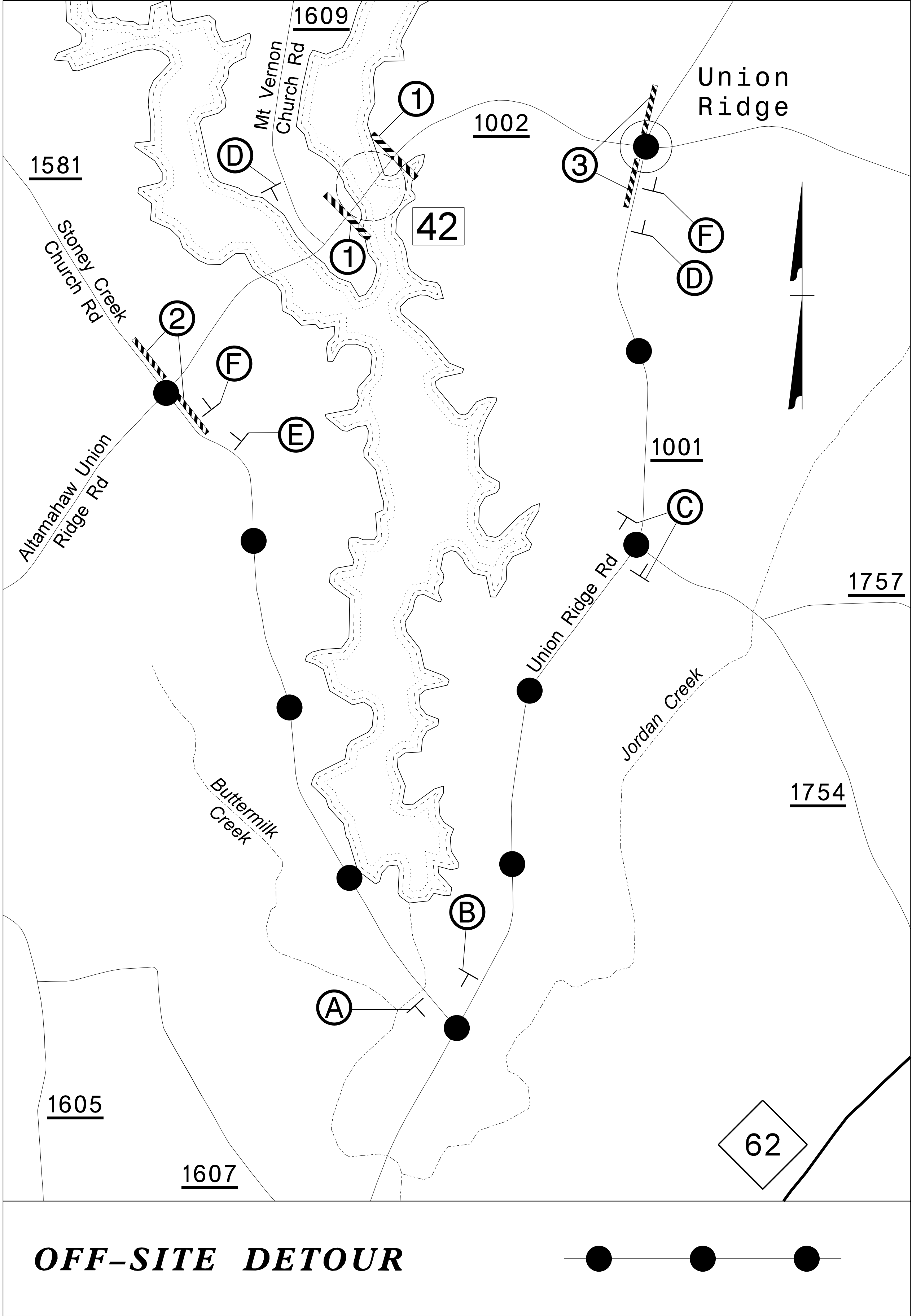
DocuSigned by:
David Bissette
D34CE9F5ADS8468.

DATE: 2/5/2015

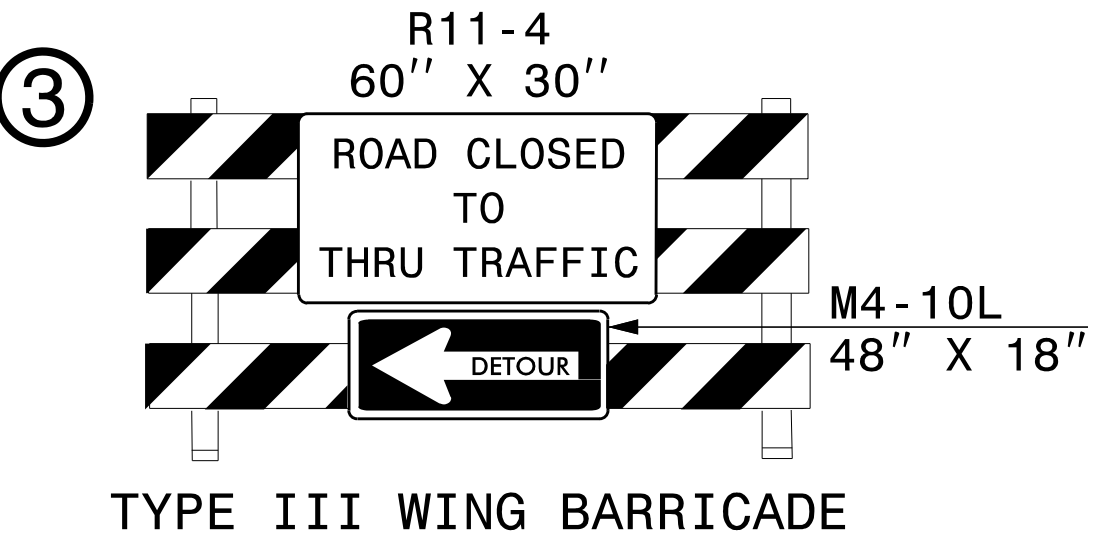
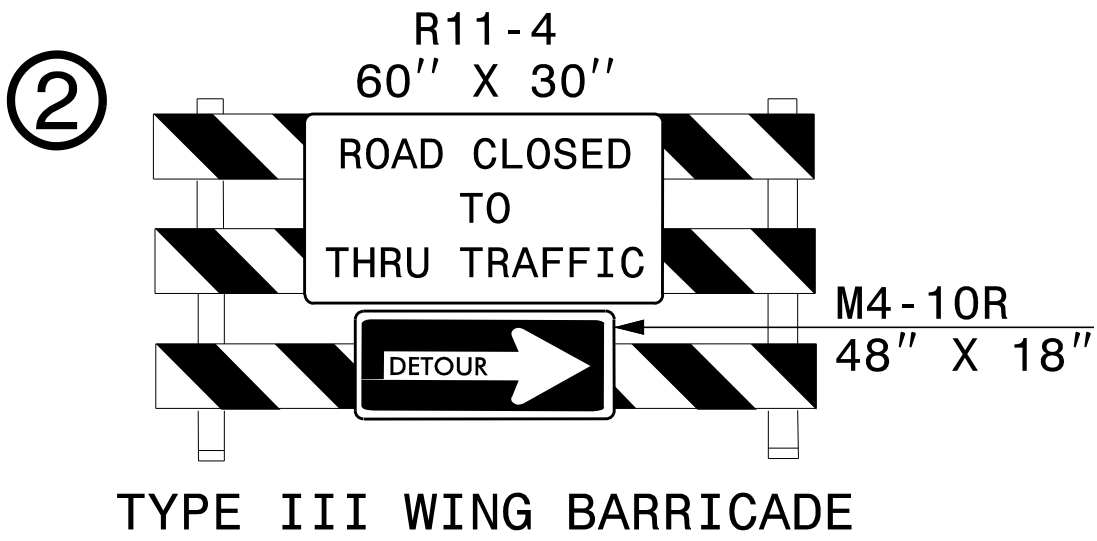
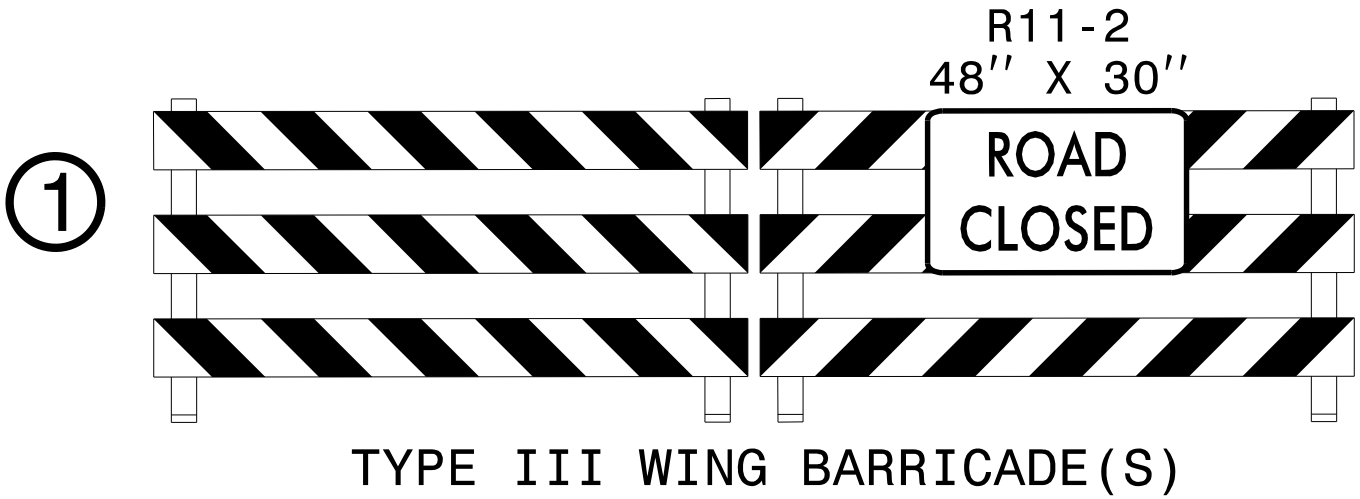
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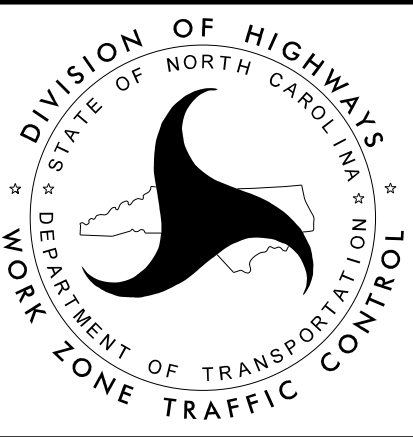
PHASING



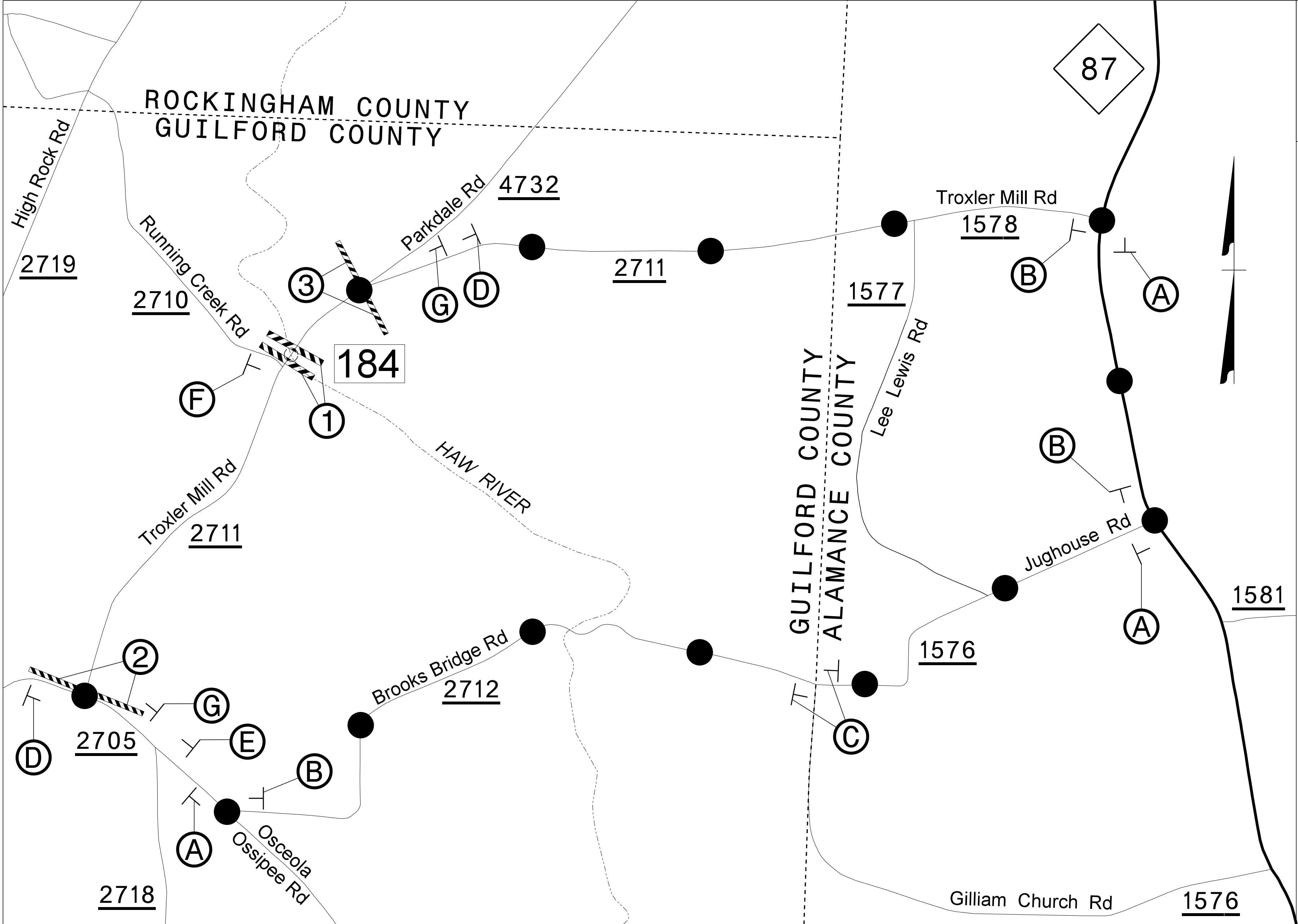
NOTES:
1. USE RSD 1101.03, SHEET 1 OF 9, FOR ROAD CLOSURE ALONG SR-1002 (ALTAMAHAW UNION RIDGE ROAD).



APPROVED: *David W. Bisette*
DATE: 2/5/2015
SEAL



OFF-SITE DETOUR AND
ROAD CLOSURE: BRIDGE #42
ALAMANCE COUNTY



OFF-SITE DETOUR

- (A)**

TROXLER MILL RD
SPECIAL 30" X 24"
DETOUR M4-8 24" X 12"
← M6-1L 21" X 15"
- (B)**

TROXLER MILL RD
SPECIAL 30" X 24"
DETOUR M4-8 24" X 12"
→ M6-1 21" X 15"
- (C)**

TROXLER MILL RD
SPECIAL 30" X 24"
DETOUR M4-8 24" X 12"
↑ M6-3 21" X 15"
- (D)**

ROAD CLOSED AHEAD W20-3 48" X 48"
NEXT LEFT SP-4L 42" X 12"
- (E)**

ROAD CLOSED AHEAD W20-3 48" X 48"
NEXT RIGHT SP-4R 42" X 12"
- (F)**

ROAD CLOSED W20-3 48" X 48"
↙ R3-2 24" X 24"
- (G)**

END DETOUR M4-8A 24" X 18"

- ①**

R11-2 48" X 30"
ROAD CLOSED

TYPE III WING BARRICADE(S)
- ②**

R11-3 60" X 30"
ROAD CLOSED
1 MILES AHEAD
LOCAL TRAFFIC ONLY
→ **DETOUR**

M4-10R 48" X 18"

TYPE III WING BARRICADE
- ③**

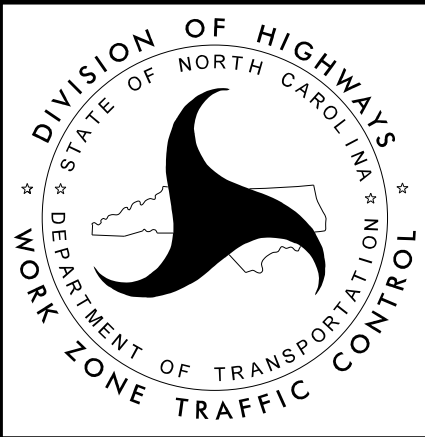
R11-4 60" X 30"
ROAD CLOSED TO THRU TRAFFIC
← **DETOUR**

M4-10L 48" X 18"

TYPE III WING BARRICADE

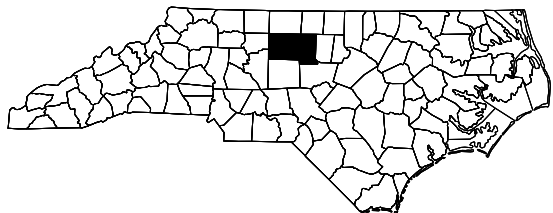
NOTES:
1. USE RSD 1101.03, SHEET 1 OF 9, FOR ROAD CLOSURE ALONG SR-2711 (TROXLER MILL ROAD).

APPROVED: *David W. Bissette*
DATE: 2/5/2015
SEAL



OFF-SITE DETOUR AND
ROAD CLOSURE: BRIDGE #184
GUILFORD COUNTY

CONTRACT: DG00269 PROJECT: BP-5500N



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

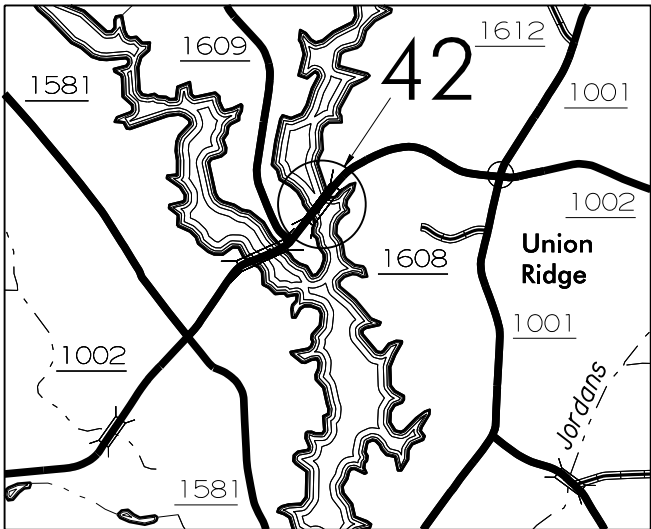
ALAMANCE AND GUILFORD COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP-5500N	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50070.1.1	BRZ-1002(46)	P.E.	
50070.3.14	BRZ-1002(46)	CONST.	

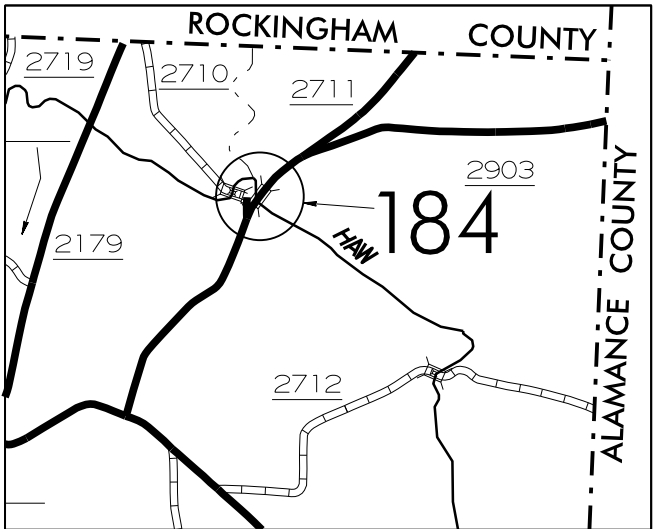
LOCATION: ALAMANCE COUNTY:
BRIDGE #42 ON SR 1002 (ALTAMAHAW UNION RIDGE ROAD)
OVER TOMS CREEK (LAKE BURLINGTON)

GUILFORD COUNTY:
BRIDGE #184 ON SR 2711 (TROXLER MILL ROAD) OVER HAW RIVER

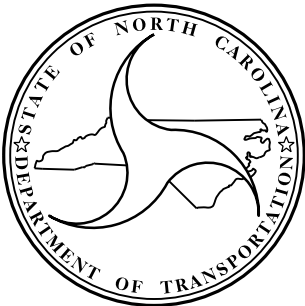
TYPE OF WORK: BRIDGE PRESERVATION - SUBSTRUCTURE AND DECK REPAIR, STRUCTURAL
STEEL REPAIR AND PAINTING OF EXISTING BRIDGE STRUCTURES.



VICINITY MAP - ALAMANCE CO.



VICINITY MAP - GUILFORD CO.



DESIGN DATA

ALAMANCE COUNTY
#42 ADT 2011 = 980

GUILFORD COUNTY
#184 ADT 1990 = 400

PROJECT LENGTH

ALAMANCE COUNTY
#42 = 0.065 MILE

GUILFORD COUNTY
#184 = 0.051 MILE

Prepared In the Office of:
**DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**
STRUCTURES MANAGEMENT UNIT - PRESERVATION & REPAIR GROUP
1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

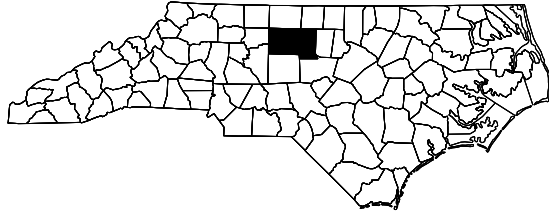
DOUGLAS R. CALHOUN, P.E.
PROJECT ENGINEER

2012 STANDARD SPECIFICATIONS

LETTING DATE:
NOVEMBER 5, 2015

DocuSigned by:
John A. Yannaccone
7BC36E90-5041-4041-8041-50415041
NORTH CAROLINA
PROFESSIONAL
SEAL
32492
ENGINEER
JOHN A. YANNACCONE
8/18/2015
JOHN A. YANNACCONE, P.E.
PROJECT DESIGN ENGINEER

CONTRACT: DG00269 PROJECT: BP-5500N



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALAMANCE AND GUILFORD COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP-5500N	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50070.1.1	BRZ-1002(46)	P.E.	
50070.3.14	BRZ-1002(46)	CONST.	

LOCATION: ALAMANCE COUNTY:
BRIDGE #42 ON SR 1002 (ALTAMAHAW UNION RIDGE ROAD)
OVER TOMS CREEK (LAKE BURLINGTON)

GUILFORD COUNTY:
BRIDGE #184 ON SR 2711 (TROXLER MILL ROAD) OVER HAW RIVER

TYPE OF WORK: BRIDGE PRESERVATION – SUBSTRUCTURE AND DECK REPAIR, STRUCTURAL
STEEL REPAIR AND PAINTING OF EXISTING BRIDGE STRUCTURES.

INDEX OF SHEETS

I	TITLE SHEET
1A	INDEX OF SHEETS
S-1	TOTAL BILL OF MATERIAL
S-2 THRU S-18	STRUCTURAL PLANS – ALAMANCE #42
S-19 THRU S-34	STRUCTURAL PLANS – GUILFORD #184
SN	STANDARD NOTES
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS

TOTAL BILL OF MATERIAL														
BRIDGE	BRIDGE APPROACH FILL- SUB REGIONAL TIER, BRIDGE #__	AGGREGATE BASE COURSE	INCIDENTAL MILLING	ASPHALT CONCRETE BASE COURSE, TYPE B25.0B	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	ASPHALT BINDER FOR PLANT MIX	GROOVING BRIDGE FLOORS	CLASS II, SURFACE PREPARATION	CLASS III, SURFACE PREPARATION	LATEX MODIFIED CONC OVERLAY	PLACING & FINISHING OF LATEX MODIFIED CONC OVERLAY	LATEX MODIFIED CONC OVERLAY- VERY EARLY STRENGTH		
	LUMP SUM	TONS	SQ. YDS.	TONS	TONS	TONS	SQ. FT.	SQ. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.	CU. YDS.		
ALAMANCE #42	——	——	335	——	40	3	4,529	13.8	* 2.0	——	——	36.2		
GUILFORD #184	LUMP SUM	18	260	30	25	3	4,526	——	* 2.0	32.2	579	——		
TOTAL	LUMP SUM	18	595	30	65	6	9,055	13.8	* 4.0	32.2	579	36.2		
BRIDGE	PLACING & FINISHING OF LATEX MODIFIED CONC OVERLAY- VERY EARLY STRENGTH	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS	CLEANING & REPAINTING OF BRIDGE #__	PAINTING CONTAINMENT FOR BRIDGE #__	VOLUMETRIC MIXER	POLLUTION CONTROL	CONCRETE FOR DECK REPAIR	BEAM REPAIR	EPOXY COATING	BRIDGE JOINT DEMOLITION	SCARIFYING BRIDGE DECK	HYDRO- DEMOLITION OF BRIDGE DECK
	SQ. YDS.	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	CU. FT.	LBS.	SQ. FT.	SQ. FT.	SQ. YDS.	SQ. YDS.
ALAMANCE #42	580	34.4	10.5	LUMP SUM	LUMP SUM	LUMP SUM	*LUMP SUM	LUMP SUM	* 8.0	118	177	66	580	580
GUILFORD #184	——	4.4	2.5	LUMP SUM	LUMP SUM	LUMP SUM	*LUMP SUM	LUMP SUM	* 8.0	——	183	69	579	579
TOTAL	580	38.8	13	LUMP SUM	LUMP SUM	LUMP SUM	*LUMP SUM	LUMP SUM	*16.0	118	360	135	1,159	1,159

* CLASS III SURFACE PREPARATION, CONCRETE FOR DECK REPAIR AND VOLUMETRIC MIXER ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

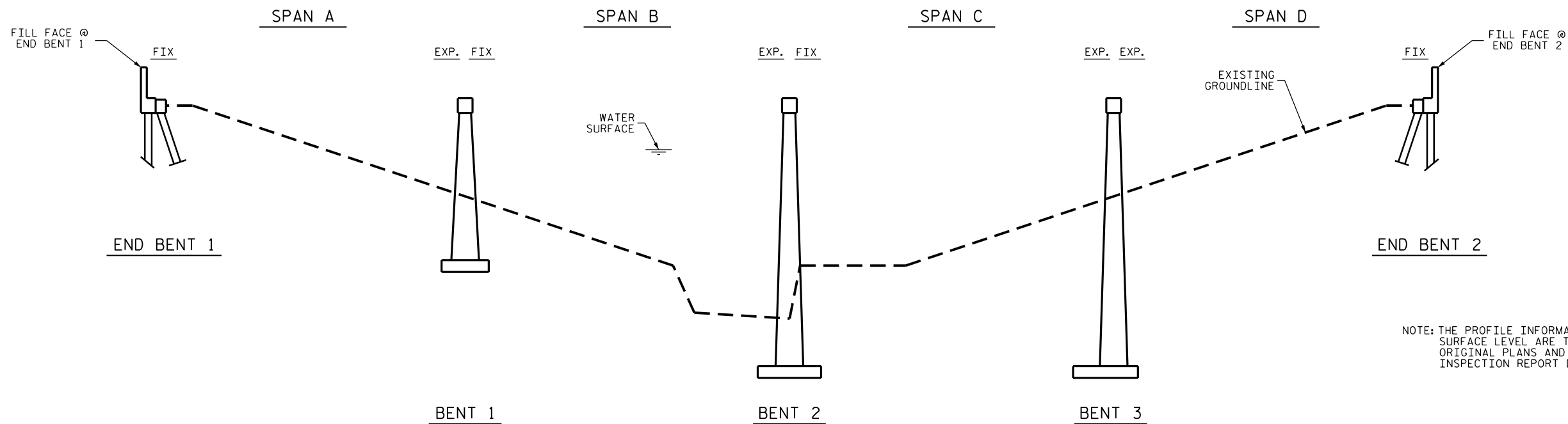
PROJECT NO. BP-5500N
ALAMANCE/GUILFORD COUNTY
BRIDGE NO. 42 & 184

DRAWN BY : C. BRIGHT DATE : 12/14
CHECKED BY : J. YANNACCONE DATE : 12/14

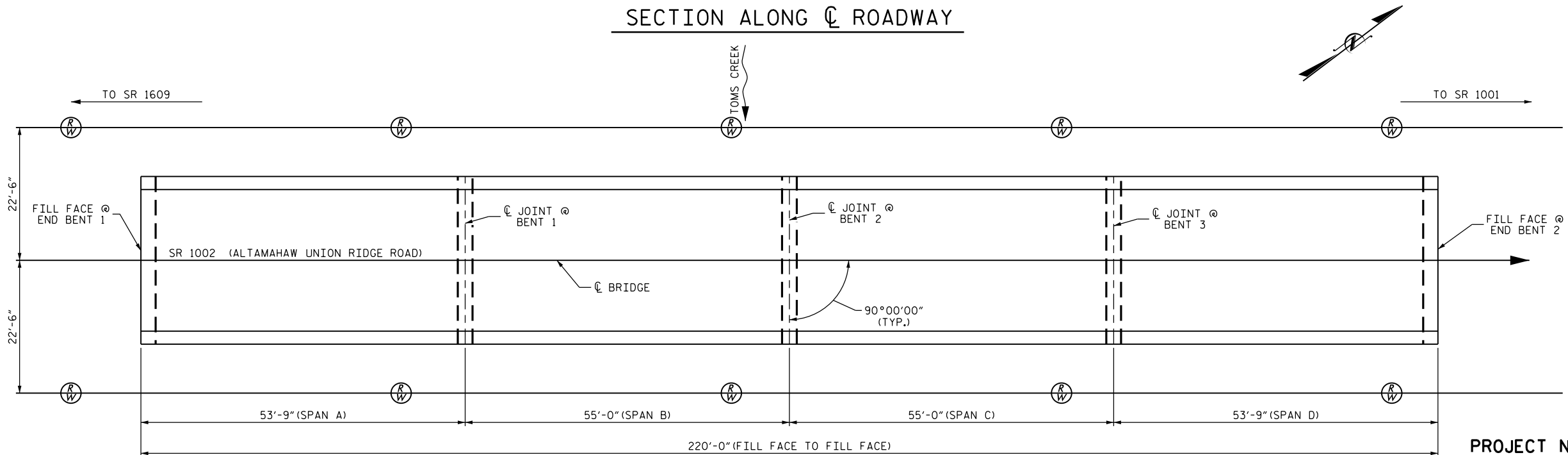
DocuSigned by:
John A. Yannaccone
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NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
32492
JOHN A. YANNACCONE

8/18/2015

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH									
TOTAL BILL OF MATERIAL									
REVISIONS									SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:				S-1
1			3						TOTAL
2			4						SHEETS
									34



NOTE: THE PROFILE INFORMATION AND WATER SURFACE LEVEL ARE TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 08/20/2013.



PLAN

SCOPE OF WORK

- REMOVE OVERHANG DIAPHRAGMS
- SAWCUT AND CHIP OUT UNSOUND CONCRETE ON UNDERSIDE OF DECK AND BENT DIAPHRAGMS.
- PLATE STEEL I- BEAM ENDS, REPAIR FLANGES AND STIFFENERS.
- CLEAN/PAINT STEEL I- BEAMS AND BEARINGS.
- EPOXY INJECT CONCRETE CRACKS.
- CLEAN AND REPAIR REBAR IN CONCRETE REPAIR AREAS.
- PERFORM SHOTCRETE REPAIRS IN PREPARED AREAS AND REPLACE OVERHANG DIAPHRAGMS.
- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND HYDRO-DEMOLITION METHODS.
- DEMOLISH EXISTING BRIDGE DECK JOINTS.
- OVERLAY PREPARED BRIDGE DECK WITH LATEX MODIFIED CONCRETE.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL JOINT SEALS.
- MILL AND PAVE ASPHALT APPROACHES.
- GROOVE LATEX MODIFIED CONCRETE BRIDGE DECK.

DRAWN BY : CL BRIGHT DATE : 12/14
CHECKED BY : J. YANNAACONE DATE : 01/15
DESIGN ENGINEER OF RECORD: - DATE : -

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JYannaccone

DocuSigned by:

John A. Yannaccone

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8/18/2015

PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE ON SR 1002 (ALTAMAHAW UNION RIDGE RD) OVER TOMS CREEK (LAKE BURLINGTON)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-2
TOTAL SHEETS					34



LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

FOR OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH (LMC-VES), SEE SPECIAL PROVISIONS.

ROADWAY MILLING IS INCLUDED TO ENSURE A SMOOTH TRANSITION ONTO THE BRIDGE FLOOR. THE CONTRACTOR SHALL MILL AS REQUIRED TO PROVIDE A SMOOTH TRANSITION TO THE ROADWAY AT BOTH ENDS OF THE BRIDGE.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.

FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.

FOR PAINTING CONTAINMENT, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISION.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING OF BRIDGE, SEE SPECIAL PROVISIONS.

FOR POLLUTION CONTROL, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISION.

PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

SHEET 2 OF 2

DocuSigned by:

John A. Yannaccone

7BC36E9C-2304E



8/18/2015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON SR 1002
(ALTAMAHAW UNION RIDGE RD)
OVER TOMS CREEK
(LAKE BURLINGTON)

REVISIONS

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2			4		

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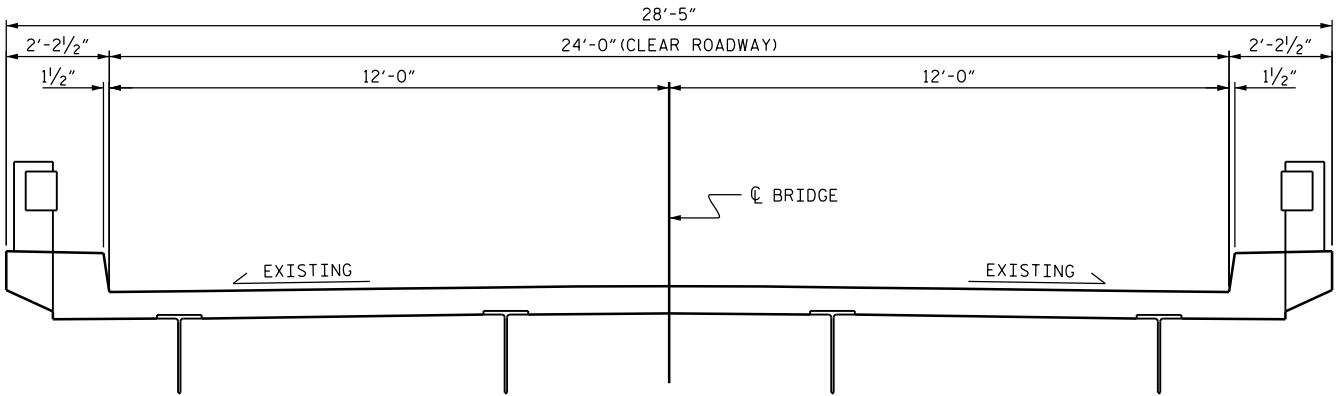
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TOTAL SHEETS

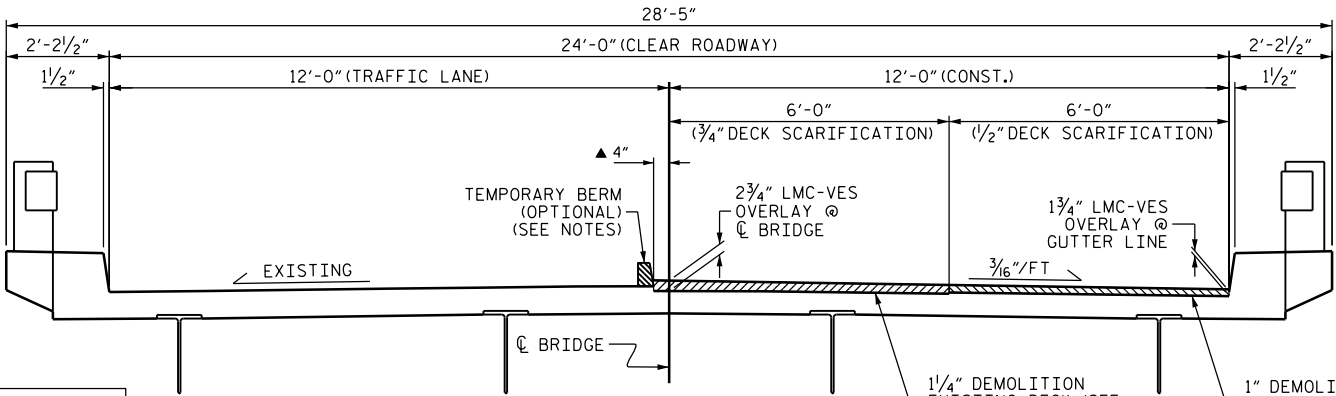
34

DRAWN BY : CL BRIGHT DATE : 12/14
CHECKED BY : J. YANNAKONE DATE : 01/15
DESIGN ENGINEER OF RECORD: - DATE : -

NOTE:
THE WORK STAGING ON THIS PLAN SHEET INDICATES THAT THE RIGHT LANE LMC WORK IS PERFORMED FIRST, FOLLOWED BY THE LEFT LANE LMC WORK. THE CONTRACTOR MAY ELECT TO SEQUENCE THE WORK DIFFERENTLY, BUT THE DIMENSIONS OF THE WORK ZONE AND CLEAR ROADWAY AREAS SHALL MATCH THAT INDICATED ON THIS PLAN SHEET, RESPECTIVE TO THE LANE WHERE THE LMC WORK IS BEING PERFORMED.

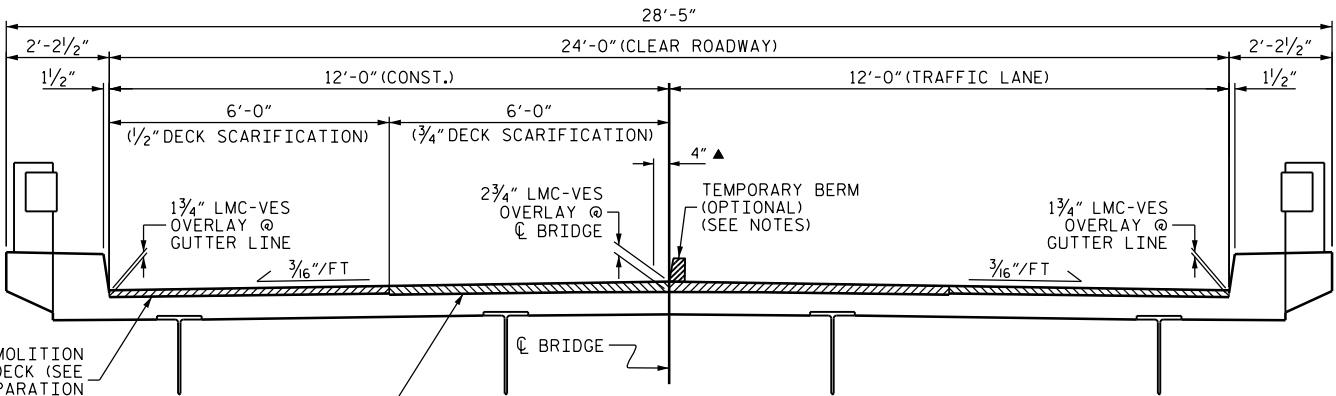


TYPICAL SECTION
(EXISTING)

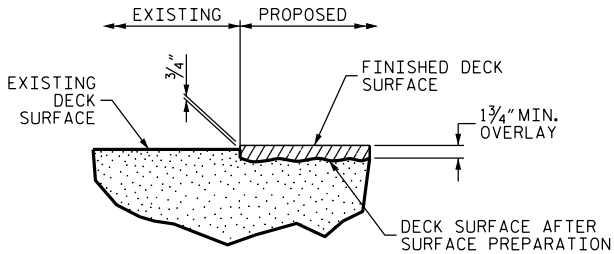


TYPICAL SECTION
(RIGHT LANE LMC-VES WORK)

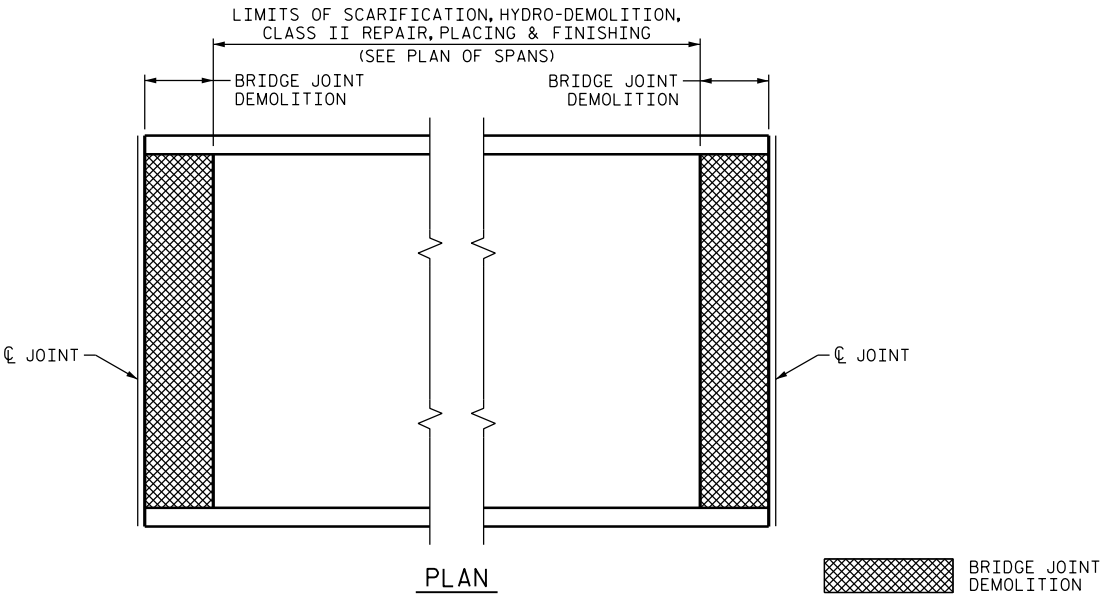
▲ 4" OVERLAP BETWEEN OVERLAYS
PREVIOUSLY POURED LMC-VES
TO BE HYDRO-DEMOLITIONED
& RECAST WITH LMC-VES



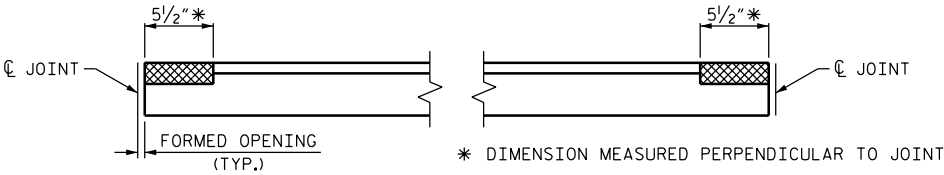
TYPICAL SECTION
(LEFT LANE LMC-VES WORK)



DETAIL FOR LMC-VES OVERLAY
(SHOWN @ GUTTER LINE)



PLAN



ELEVATION

PAY LIMITS FOR OVERLAY BID ITEMS

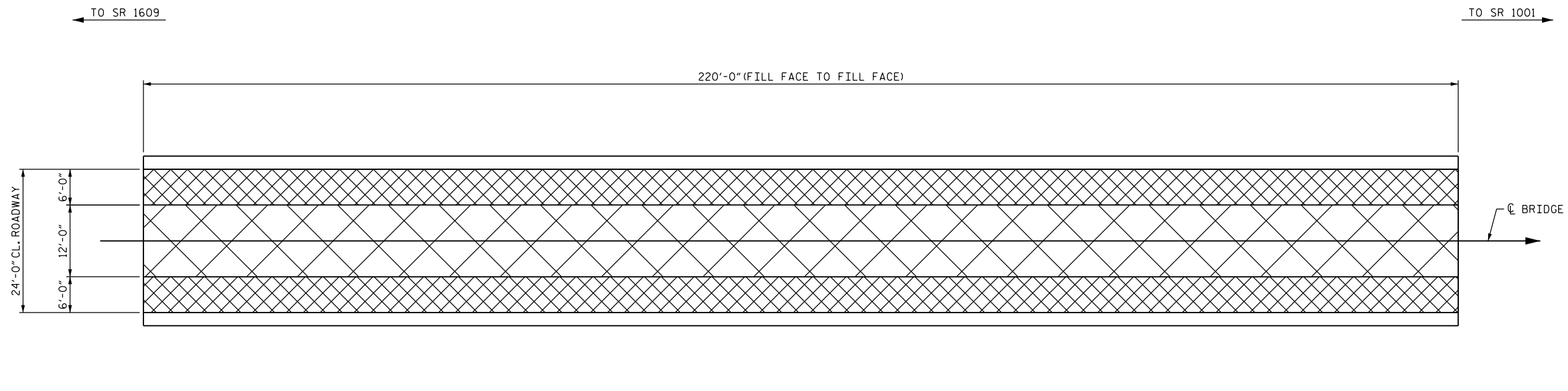
PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

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John A. Yannaccone
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PROFESSIONAL
SEAL
32492
JOHN A. YANNACCONI
ENGINEER


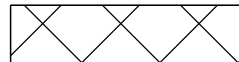
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-4
2			4			TOTAL SHEETS 34

DRAWN BY : C. BRIGHT DATE : 12/14
CHECKED BY : J. YANNACCONI DATE : 12/14
DESIGN ENGINEER OF RECORD: - DATE : -

8/18/2015



PLAN
(FOR PAY LIMITS AT BENTS,
SEE "TYPICAL SECTION AND SURFACE PREPARATION DETAILS" SHEET)

-  DECK SCARIFICATION ($\frac{1}{2}$ ") AND HYDRO-DEMOLITION
(DUE TO LOW TOP BAR COVER IN THIS AREA)
-  DECK SCARIFICATION ($\frac{3}{4}$ ") AND HYDRO-DEMOLITION

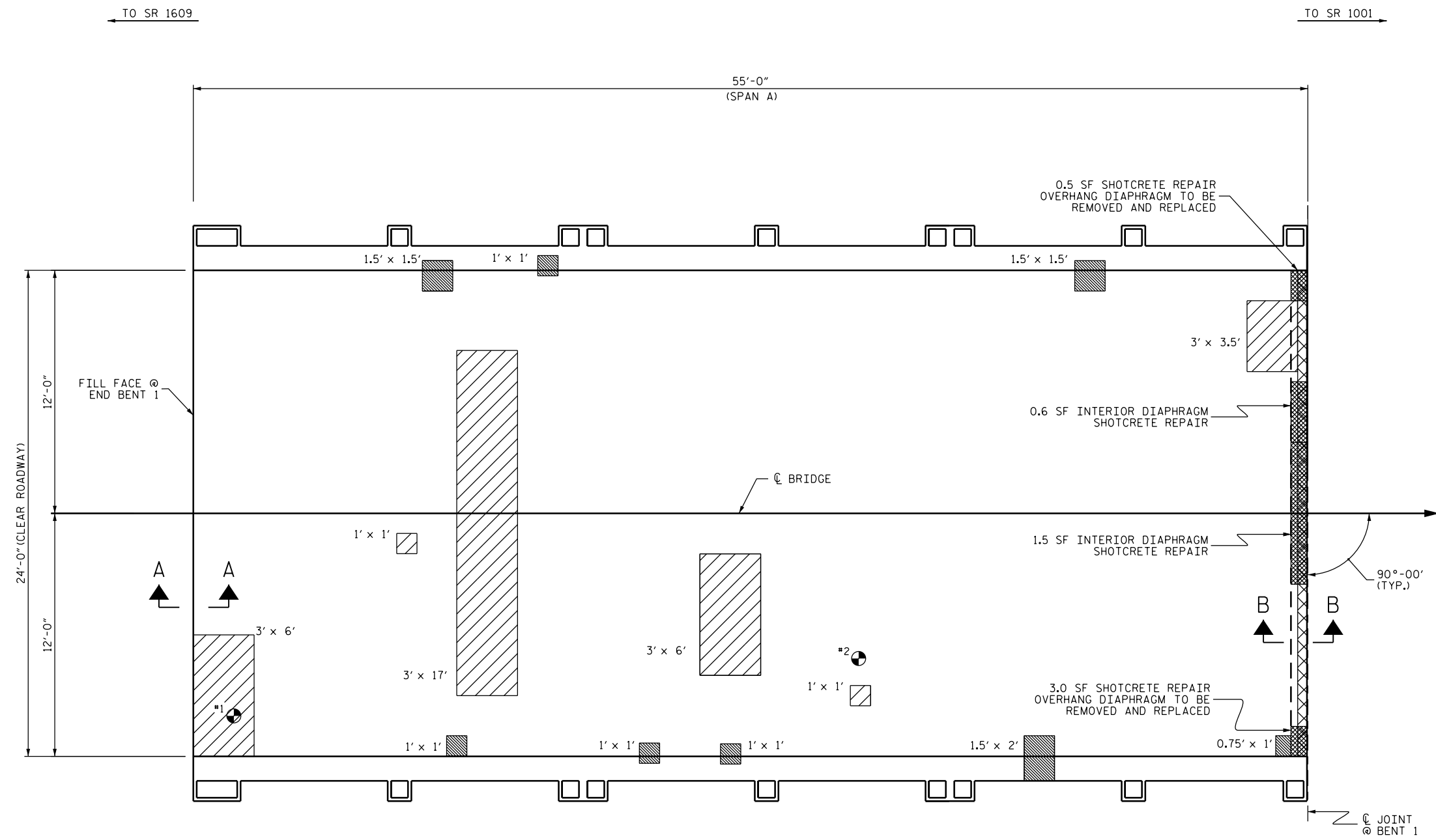
PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

DocuSigned by:
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JOHN A. YANNACCONE

8/18/2015

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.	
SURFACE PREPARATION PLAN						S-5	
REVISIONS						TOTAL SHEETS	
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3			34	
2			4				

DRAWN BY : C. BRIGHT DATE : 12/14
CHECKED BY : J. YANNACCONE DATE : 01/15
DESIGN ENGINEER OF RECORD: - DATE : -



PLAN

SUMMARY OF QUANTITIES				
TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	146	SY		
HYDRO-DEMOLITION OF BRIDGE DECK	146	SY		
CLASS II SURFACE PREPARATION	11.1	SY		
CLASS III SURFACE PREPARATION	0.5	SY		
BRIDGE JOINT DEMOLITION	11.0	SF		
EPOXY RESIN INJECTION	0.0	LF		
CONCRETE FOR DECK REPAIR	2.0	CF		
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	3.5	2.7		
UNDERSIDE OF OVERHANG	12.3	4.6		
INTERIOR DIAPHRAGMS	2.1	1.8		
		ESTIMATE	ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION		0.0 LF		

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- APPROX. CLASS II AREA
- APPROX. CLASS III AREA
- BRIDGE JOINT DEMOLITION
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- TEST LOCATION

NOTES:

FOR UNDERSIDE OF DECK REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIRS DETAILS" SHEET.

FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

TEST LOCATION	TOP BAR COVER (INCH)	CONCRETE STRENGTH (PSI)
#1	3/4"	3900
#2	2 1/2"	4700

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 5/22/2014.

DRAWN BY : C. BRIGHT DATE : 12/14
CHECKED BY : J. YANNACCONE DATE : 01/15
DESIGN ENGINEER OF RECORD: DATE : -

DocuSigned by:
John A. Yannacccone
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STATE OF NORTH CAROLINA
PROFESSIONAL SEAL
32492
JOHN A. YANNACCONE
8/18/2015

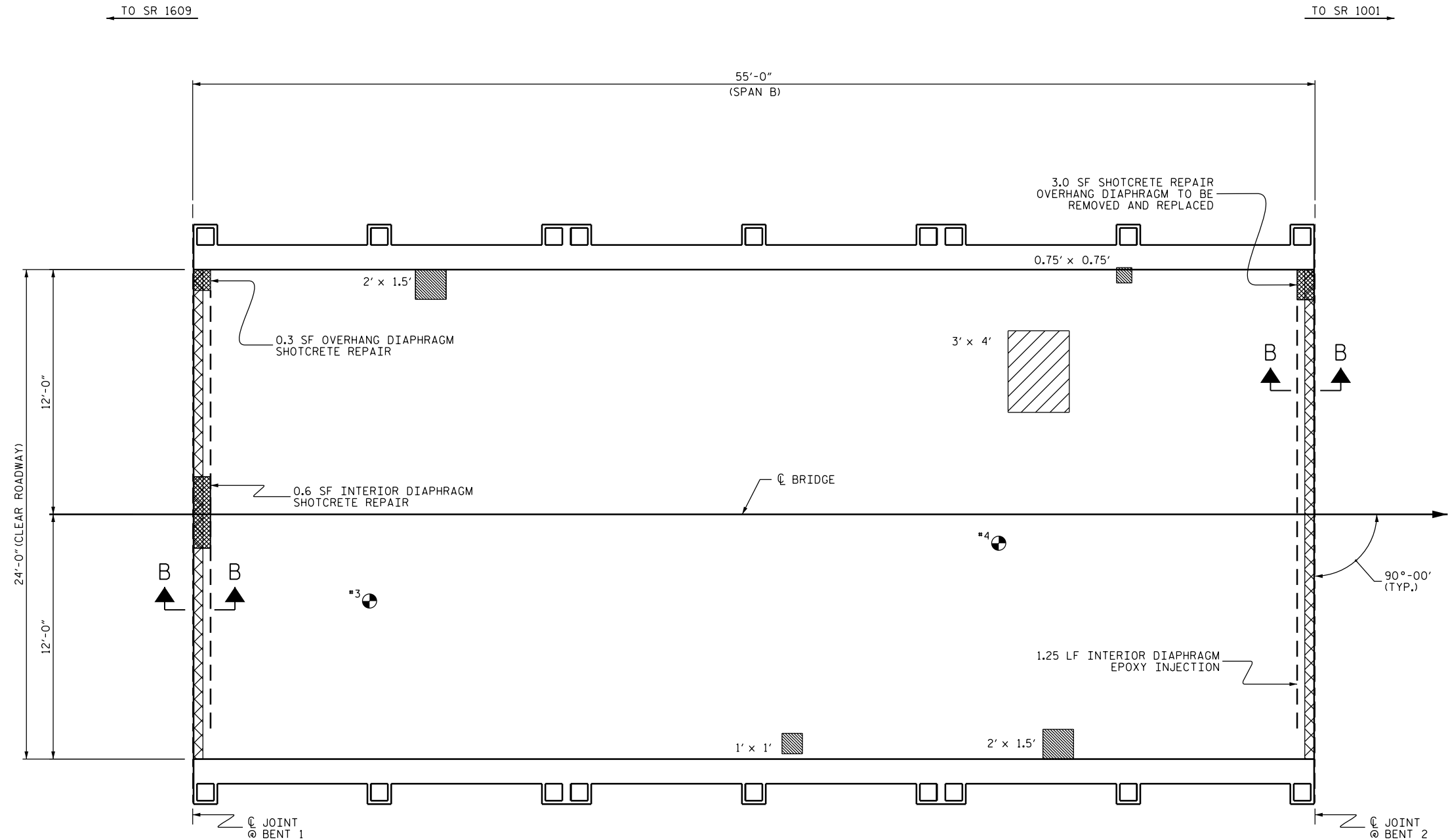
PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN
SPAN A

REVISIONS						SHEET NO.
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1			3			S-6
2			4			TOTAL SHEETS 34



PLAN

SUMMARY OF QUANTITIES				
TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	144	SY		
HYDRO-DEMOLITION OF BRIDGE DECK	144	SY		
CLASS II SURFACE PREPARATION	1.3	SY		
CLASS III SURFACE PREPARATION	0.5	SY		
BRIDGE JOINT DEMOLITION	22.0	SF		
EPOXY RESIN INJECTION	0.0	LF		
CONCRETE FOR DECK REPAIR	2.0	CF		
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	3.3	2.6		
UNDERSIDE OF OVERHANG	7.6	2.9		
INTERIOR DIAPHRAGMS	0.6	0.5		
		ESTIMATE	ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION		0.0 LF		
DIAPHRAGM EPOXY RESIN INJECTION		1.25 LF		

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- APPROX. CLASS II AREA
- APPROX. CLASS III AREA
- BRIDGE JOINT DEMOLITION
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- TEST LOCATION

NOTES:

FOR UNDERSIDE OF DECK REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIRS DETAILS" SHEET.

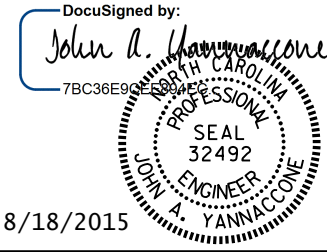
FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

TEST LOCATION	TOP BAR COVER (INCH)	CONCRETE STRENGTH (PSI)
#3	2 1/2"	5100
#4	2 3/8"	5300

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 5/22/2014.

DRAWN BY :	C. BRIGHT	DATE :	12/14
CHECKED BY :	J. YANNACCONE	DATE :	01/15
DESIGN ENGINEER OF RECORD:	-	DATE :	-

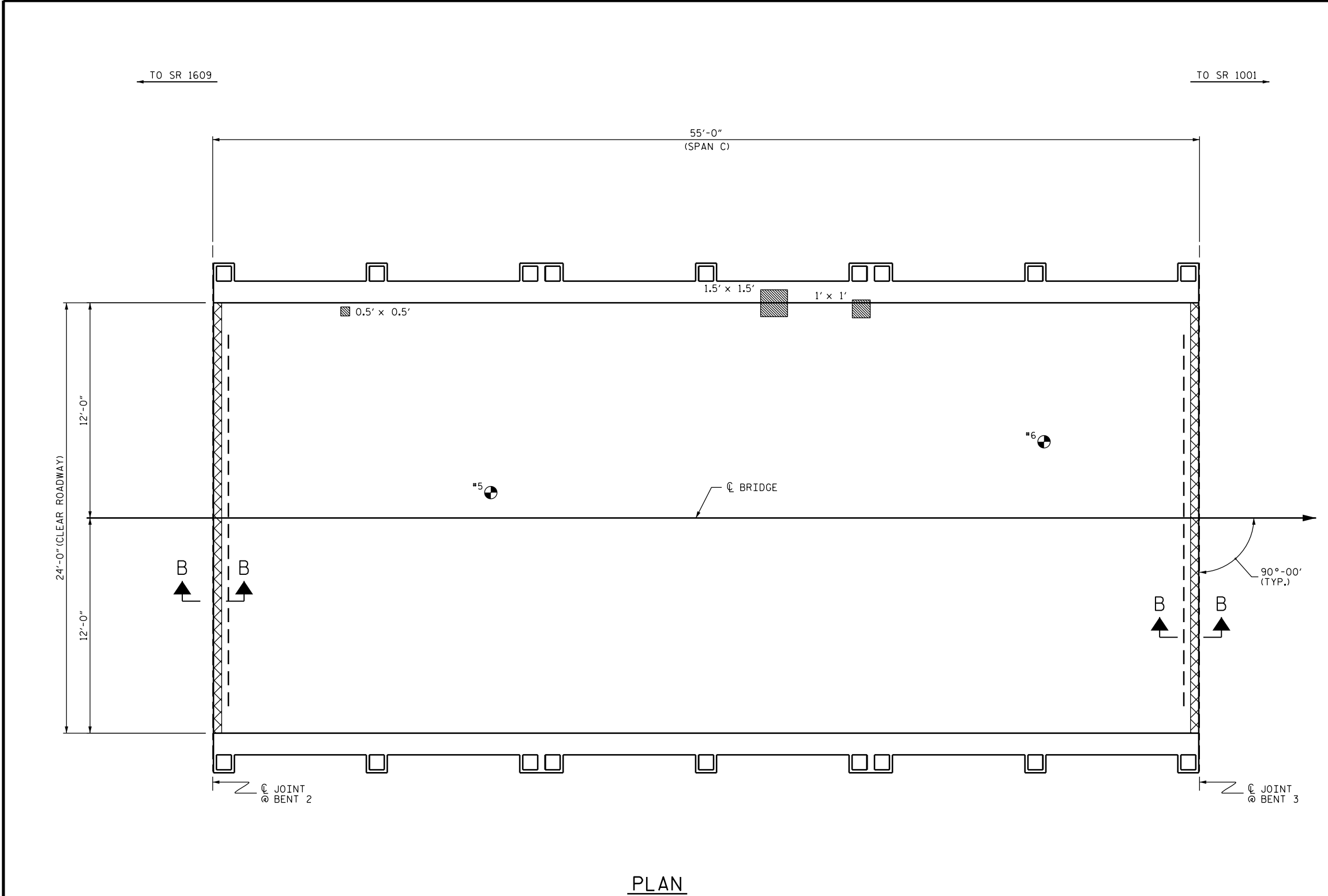
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PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

SHEET 2 OF 4

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	S-7
1			3				
2			4			34	



PLAN

SUMMARY OF QUANTITIES				
TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	144 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	144 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CLASS III SURFACE PREPARATION	0.5 SY			
BRIDGE JOINT DEMOLITION	22.0 SF			
EPOXY RESIN INJECTION	0.0 LF			
CONCRETE FOR DECK REPAIR	2.0 CF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	3.5	0.9		
INTERIOR DIAPHRAGMS	0.0	0.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- APPROX. CLASS II AREA
- APPROX. CLASS III AREA
- BRIDGE JOINT DEMOLITION
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- TEST LOCATION

NOTES:

FOR UNDERSIDE OF DECK REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIRS DETAILS" SHEET.

FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

TEST LOCATION	TOP BAR COVER (INCH)	CONCRETE STRENGTH (PSI)
#5	2 3/8"	5100
#6	1 3/4"	4700

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 5/22/2014.

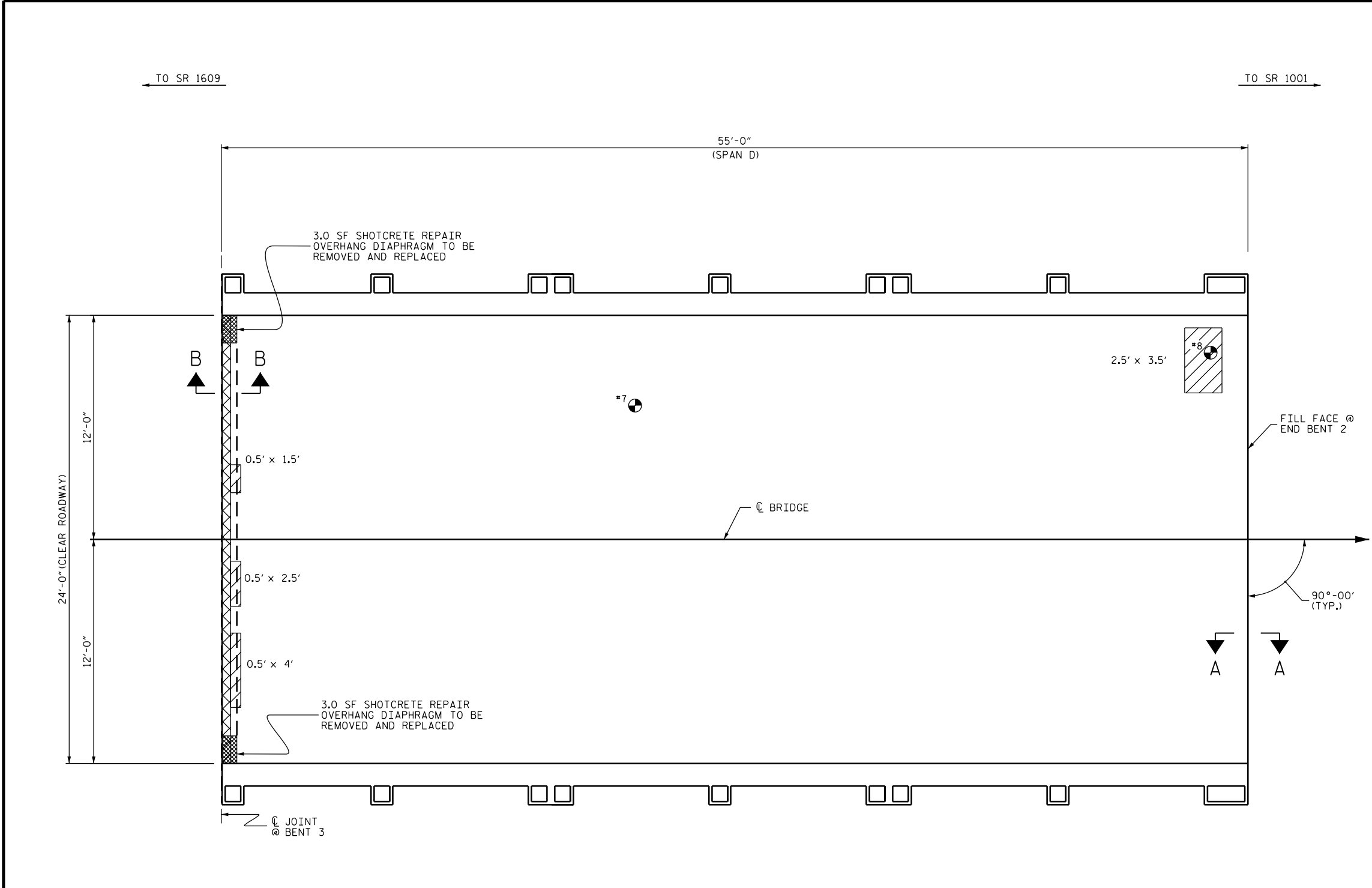
DRAWN BY :	C. BRIGHT	DATE :	12/14
CHECKED BY :	J. YANNACCONE	DATE :	01/15
DESIGN ENGINEER OF RECORD:	-	DATE :	-

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Jyannaccone

DocuSigned by:
John A. Yannaccone
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SEAL
32492
JOHN A. YANNACCONE
8/18/2015

PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	
2			4			34	



PLAN

SUMMARY OF QUANTITIES				
TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	146	SY		
HYDRO-DEMOLITION OF BRIDGE DECK	146	SY		
CLASS II SURFACE PREPARATION	1.4	SY		
CLASS III SURFACE PREPARATION	0.5	SY		
BRIDGE JOINT DEMOLITION	11.0	SF		
EPOXY RESIN INJECTION	0.0	LF		
CONCRETE FOR DECK REPAIR	2.0	CF		
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	6.0	5.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
		ESTIMATE	ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION		0.0 LF		

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- APPROX. CLASS II AREA
- APPROX. CLASS III AREA
- BRIDGE JOINT DEMOLITION
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- TEST LOCATION

NOTES:

FOR UNDERSIDE OF DECK REPAIRS, SEE "OVERHANG & DIAPHRAGM REPAIRS DETAILS" SHEET.

FOR SECTION B-B, SEE "JOINT DETAILS" SHEET.

TEST LOCATION	TOP BAR COVER (INCH)	CONCRETE STRENGTH (PSI)
#7	1 3/4"	5100
#8	3/4"	5100

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 5/22/2014.

DRAWN BY :	C. BRIGHT	DATE :	12/14
CHECKED BY :	J. YANNACCONE	DATE :	01/15
DESIGN ENGINEER OF RECORD:	-	DATE :	-

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DocuSigned by:
John A. Yannaccone
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NORTH CAROLINA
PROFESSIONAL
SEAL
32492
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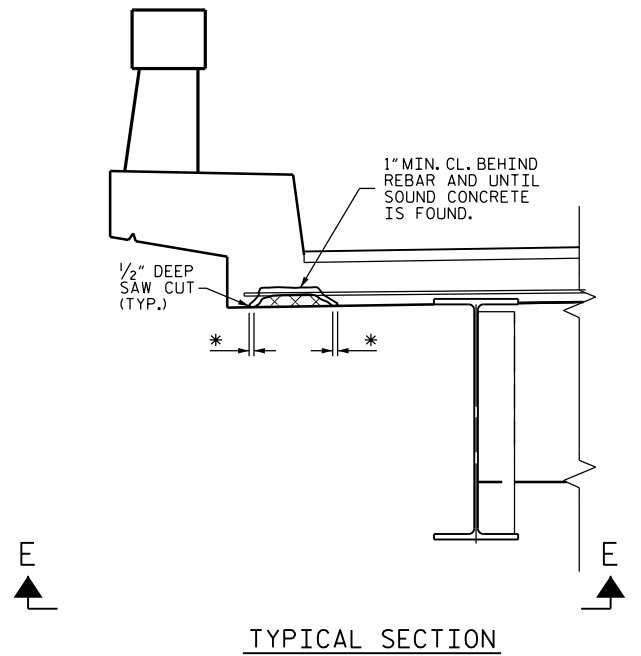
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ALAMANCE COUNTY
BRIDGE NO. 42

SHEET 4 OF 4

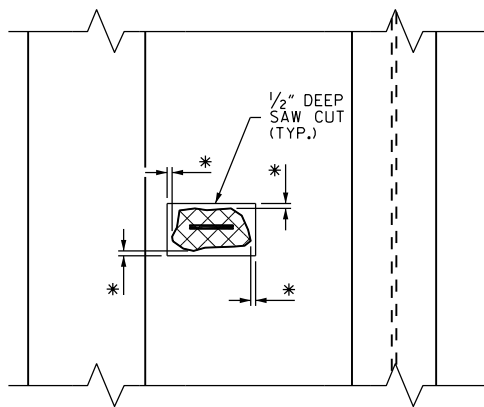
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS	S-9
1			3				
2			4			34	

NOTE: OVERHANG DIAPHRAGMS TO BE REMOVED AND REPLACED, ARE SHOWN ON "PLAN OF SPAN" SHEETS.
OVERHANG DIAPHRAGMS SHALL BE REMOVED PRIOR TO CLEANING AND PAINTING OF BEAMS AND
REPLACED AFTER BEAM REPAIRS AND PAINTING ARE COMPLETE.

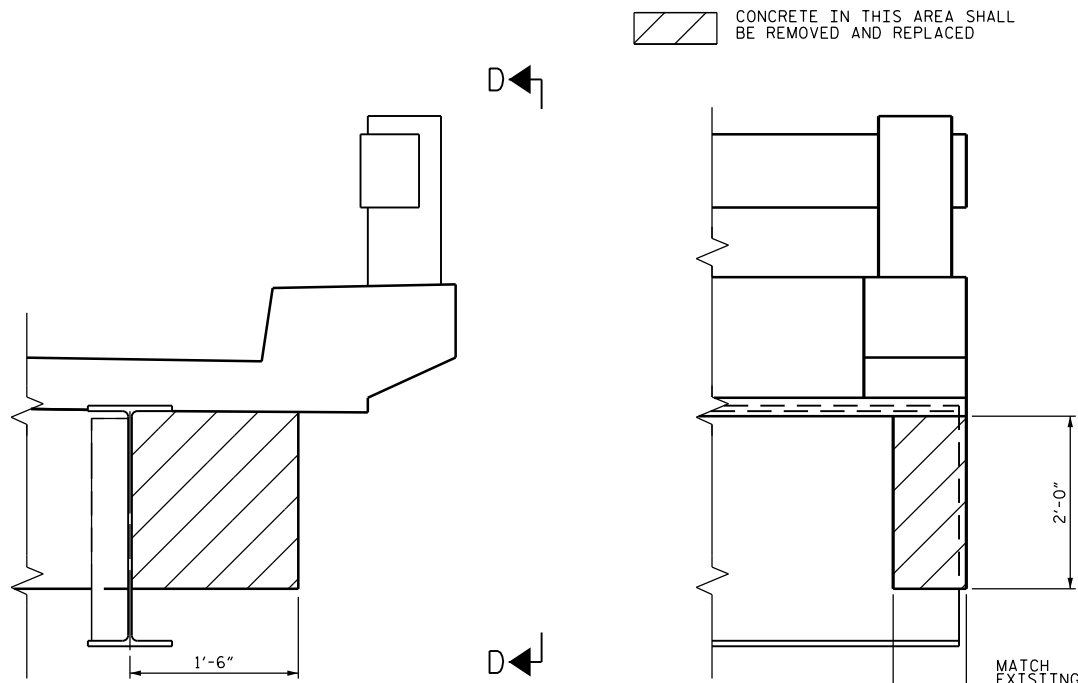


DAMAGED AREA

* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (1" MIN. DEPTH)

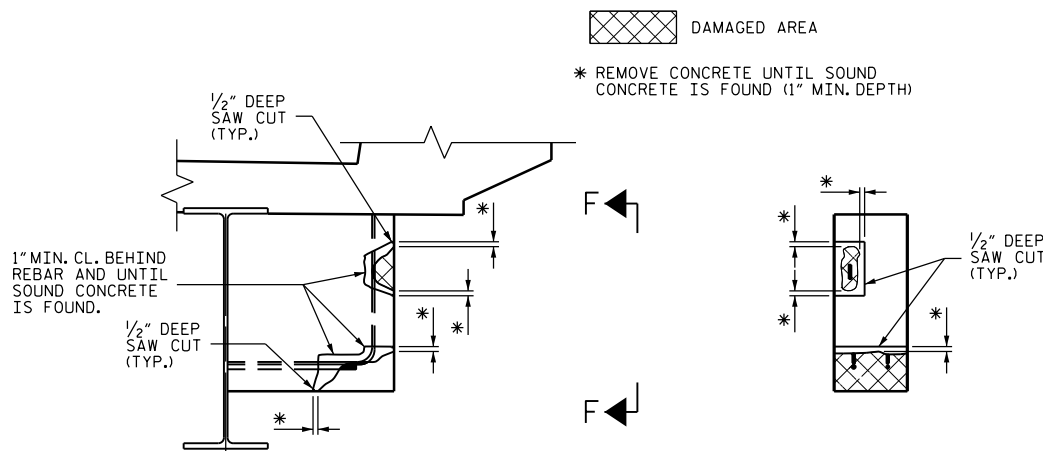


OVERHANG DETAILS

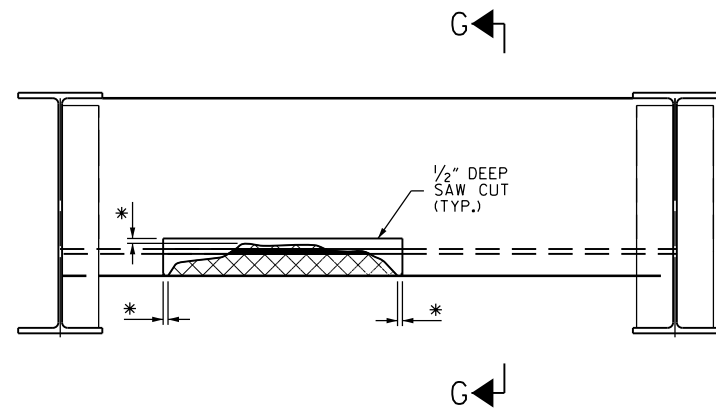


NOTE:
EXISTING REBAR TO REMAIN
IN PLACE. CLEAN AND
REPAIR AS NECESSARY.

OVERHANG DIAPHRAGM REPLACEMENT DETAILS



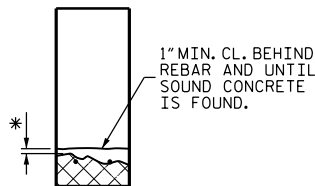
OVERHANG DIAPHRAGM REPAIR DETAILS



* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (1" MIN. DEPTH)

DAMAGED AREA

NOTE:
EXISTING REBAR TO REMAIN
IN PLACE. CLEAN AND
REPAIR AS NECESSARY.



INTERIOR DIAPHRAGM REPAIR DETAILS

PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OVERHANG & DIAPHRAGM
REPAIR DETAILS

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John A. Yannaccone
7BC36E902E594E7E
NORTH CAROLINA
PROFESSIONAL
SEAL
32492
JOHN A. YANNACCONI
ENGINEER

8/18/2015

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NOTES

FOR FOAM JOINT SEAL, SEE SPECIAL PROVISIONS.

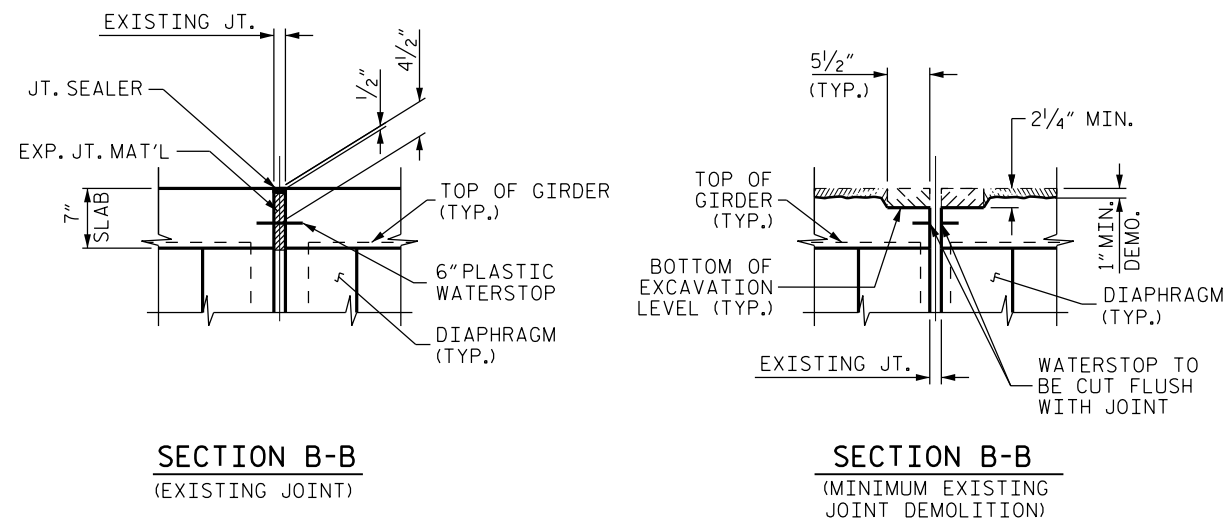
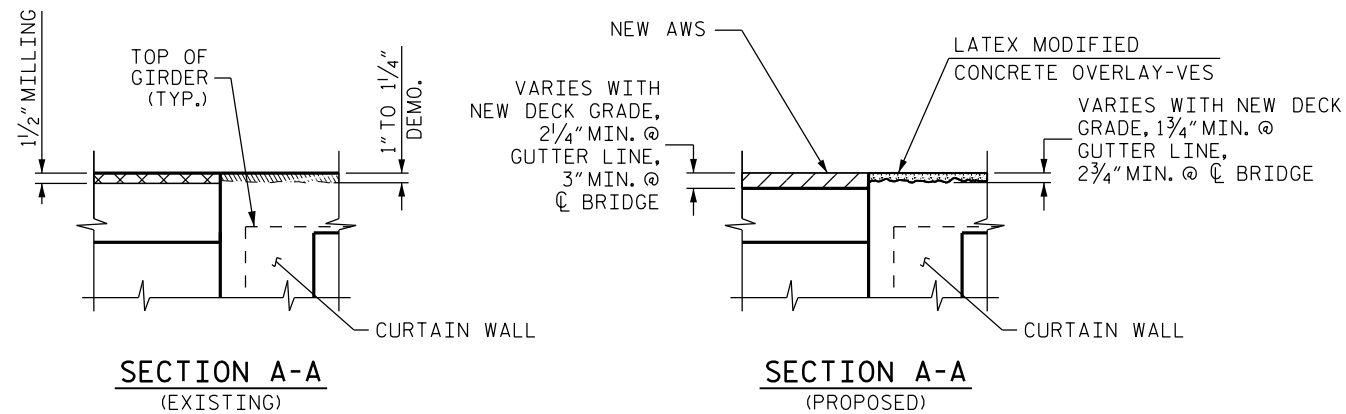
THE INSTALLED FOAM JOINT SEALS SHALL BE WATERTIGHT.

NOMINAL UNCOMPRESSED SEAL WIDTH OF FOAM JOINT SEAL SHALL BE 2" AT THE BENTS.

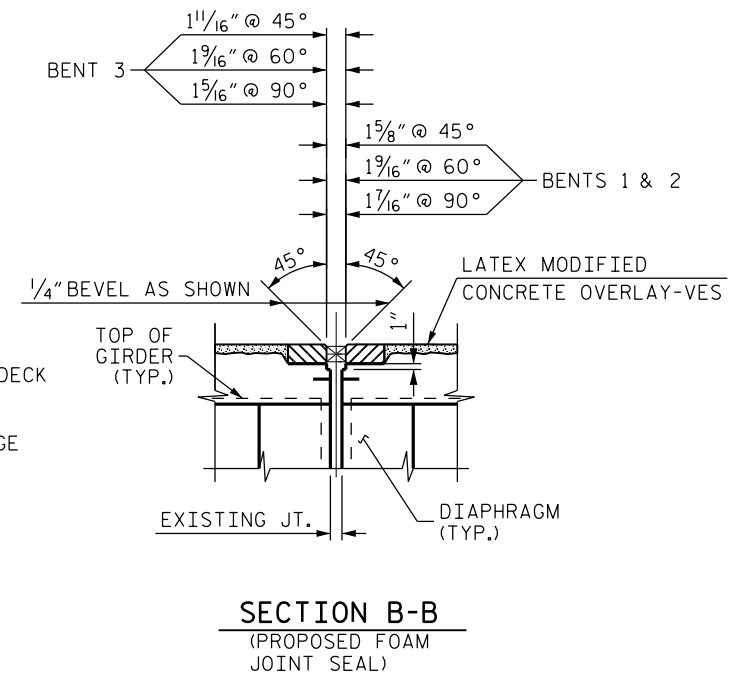
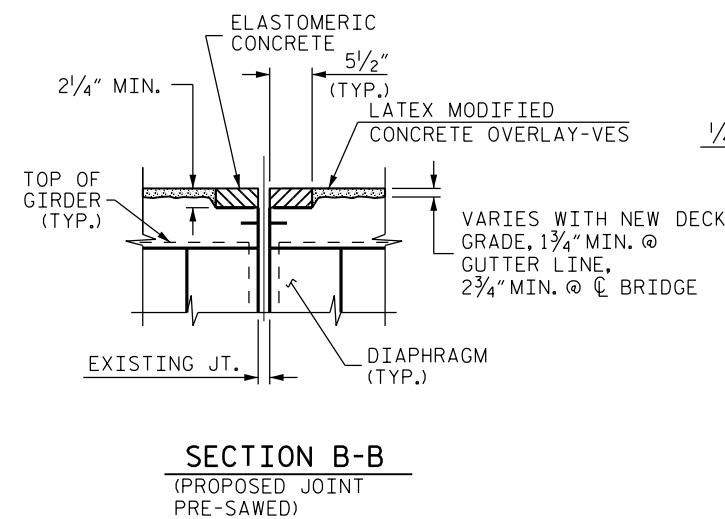
THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT FOR THE FOAM JOINT SEAL IN LIEU OF SAWING THE JOINT.

ELASTOMERIC CONCRETE		
BENT 1	4.2	(CU. FT.)
BENT 2	4.2	(CU. FT.)
BENT 3	4.2	(CU. FT.)
* TOTAL	12.6	(CU. FT.)

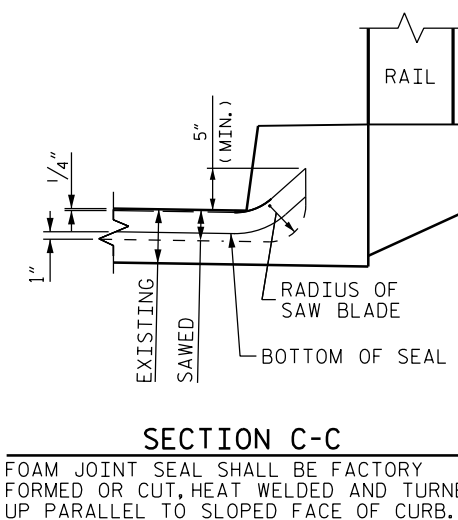
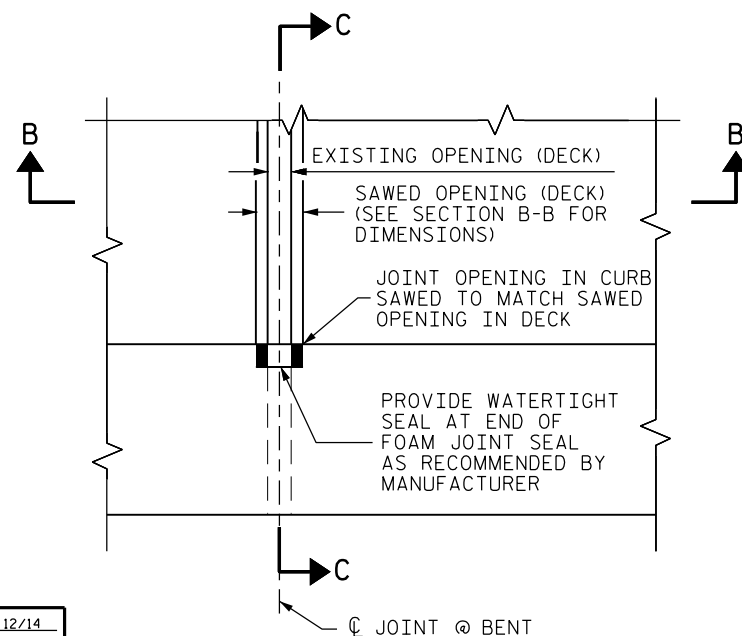
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOP SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.



DEMOLISH BRIDGE JOINT AREA TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE, NOT LATEX MODIFIED CONCRETE.



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 BRIDGE NO. 42

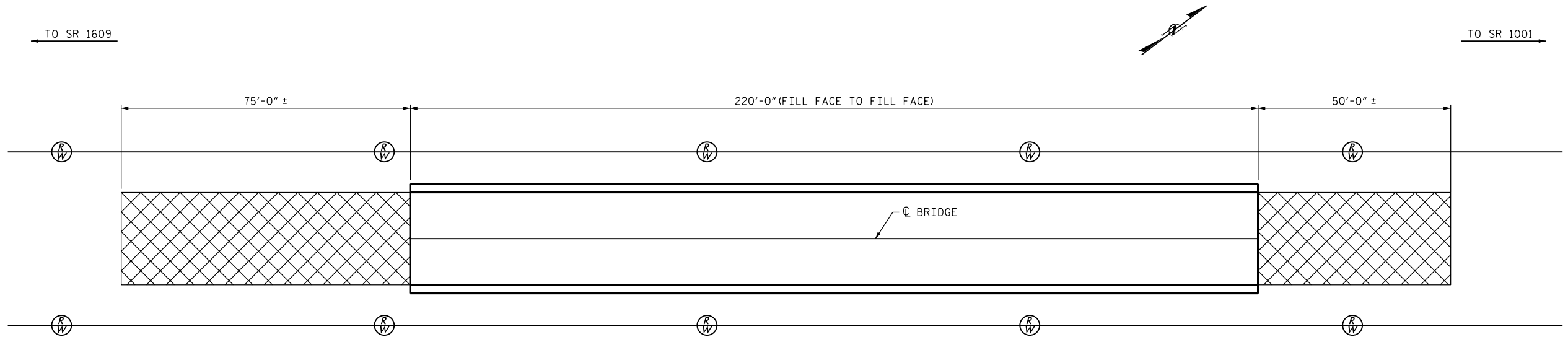
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
JOINT DETAILS					
REVISIONS					
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SHEET NO. S-11					TOTAL SHEETS 34

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John A. Yannakone
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 PROFESSIONAL ENGINEER
 SEAL 32492
 JOHN A. YANNAKONE



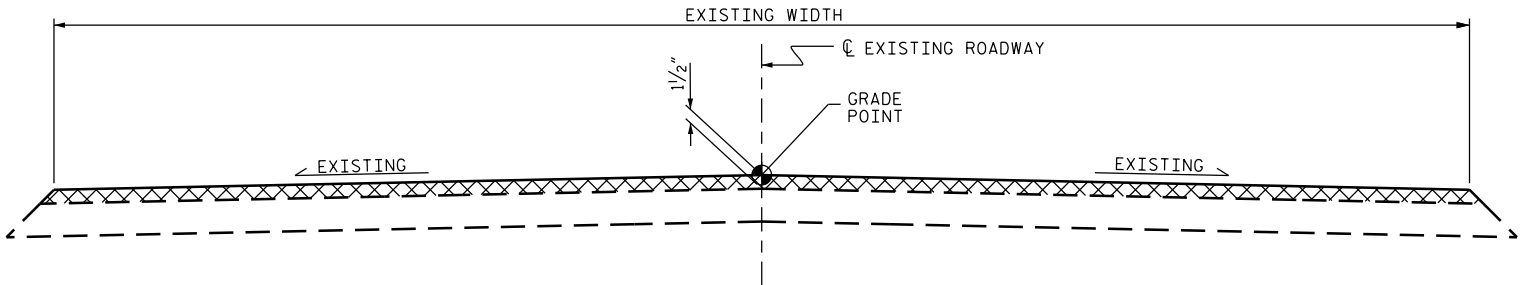
PLAN



INCIDENTAL MILLING

NOTES

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1/2" DEPTH OF NEW ASPHALT PAVEMENT. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH.



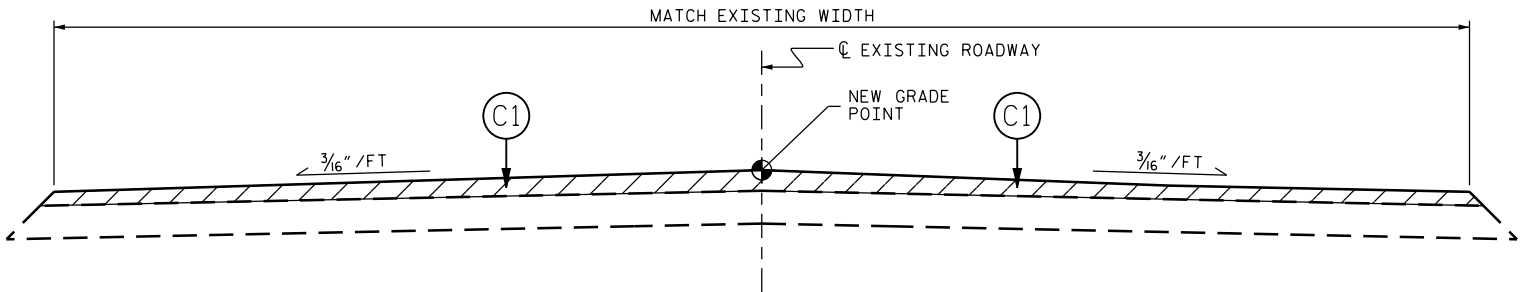
TYPICAL ROADWAY MILLING SECTION

(MILL TO 1/2" DEPTH)

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.

SUMMARY OF QUANTITIES

	ESTIMATE	ACTUAL
INCIDENTAL MILLING	335 SQ. YDS.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	45 TONS	



TYPICAL ROADWAY SECTION

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ALAMANCE COUNTY
 BRIDGE NO. 42

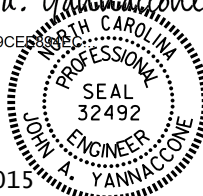
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

APPROACH MILLING &
 TYPICAL ROADWAY
 SECTIONS

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John A. Yannaccone

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8/18/2015

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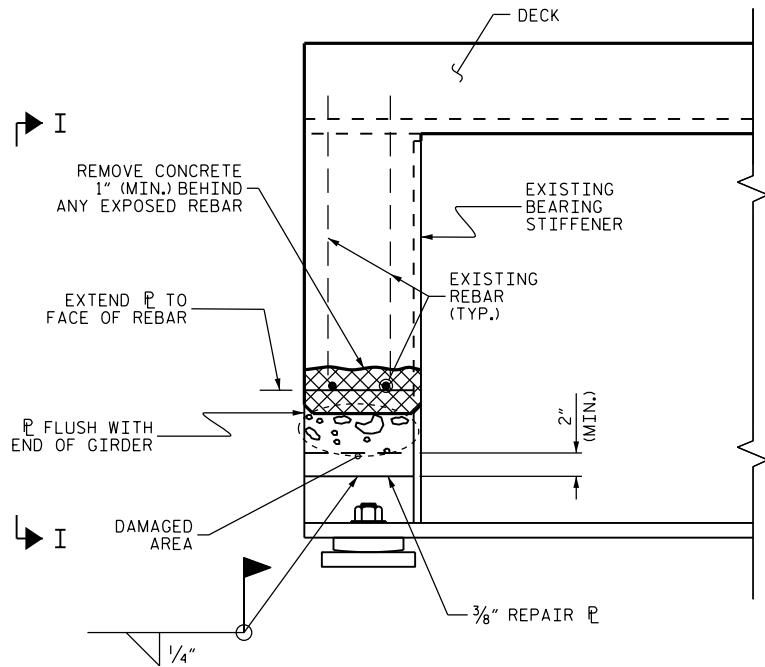
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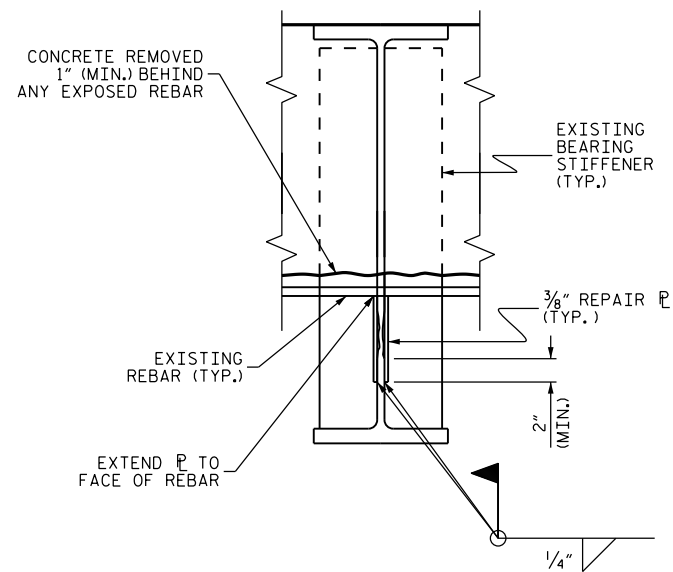
S-12

TOTAL SHEETS

34



BEAM END PLATING



SECTION I-I

NOTES:

FOR BEAM PLATING AND REPAIR LOCATIONS, SEE "BEAM PLATING AND REPAIR LOCATIONS" SHEET.

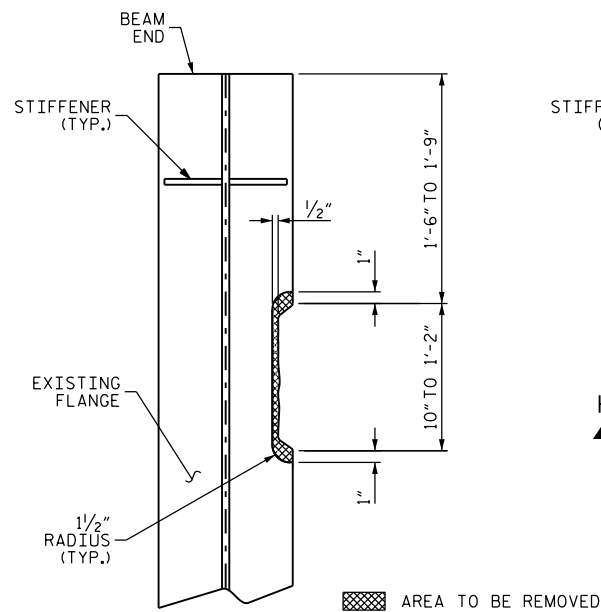
FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

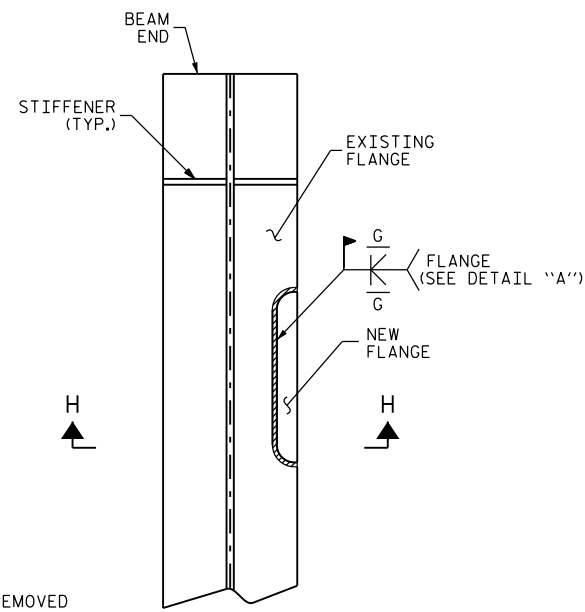
FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CONTAINMENT SYSTEM, SEE BEAM REPAIR SPECIAL PROVISION.

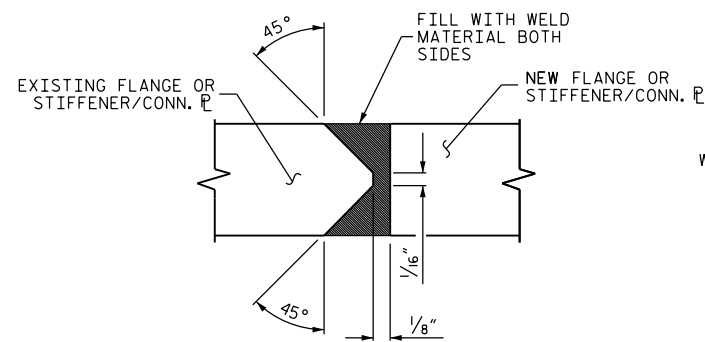
FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.



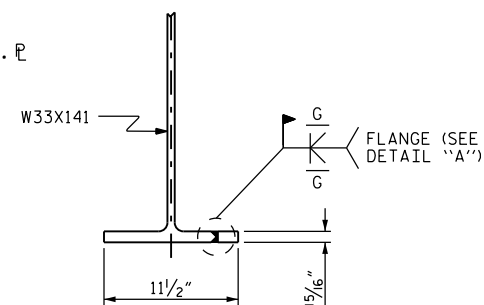
PLAN
(EXISTING)



PLAN
(PROPOSED)

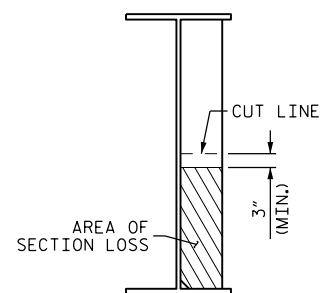


DETAIL "A"

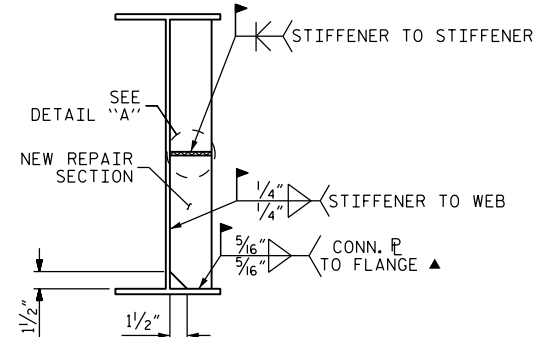


SECTION H-H

FLANGE REPAIR



EXISTING



PROPOSED

STIFFENER/CONN. PLATE REPAIR

BEAM REPAIR

AFTER THE STRUCTURAL STEEL HAS BEEN BLASTED AND PRIMED, THE STRUCTURAL STEEL AND BEARING SHALL BE INSPECTED FOR EXCESSIVE SECTION LOSS. AREAS THAT EXHIBIT AN EXCESS OF 35% SECTION LOSS SHALL BE REVIEWED BY THE ENGINEER TO DETERMINE IF AREA OF SECTION LOSS SHOULD BE REPAIRED.

AS DETERMINED BY THE ENGINEER, AREAS WITH EXCESSIVE SECTION LOSS OR AREAS WITH TEMPORARY REPAIRS SHALL BE REMOVED AND THE BEAMS SHALL BE REPAIRED AS INDICATED ON THIS PLAN SHEET. CONTRACTOR AND ENGINEER TO DETERMINE ACTUAL DIMENSIONS OF AREA TO BE REMOVED AND REPLACED. REMOVE CONCRETE BENT DIAPHRAGMS AS NEEDED TO EVALUATE LIMITS OF REPAIR.

PAYMENT FOR THE SECTION REPAIR SHALL BE BASED ON THAT AMOUNT OF REPAIR ACTUALLY PERFORMED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

GOUGES AND INDENTATIONS FROM IMPACT ON GIRDERS SHALL BE GROUND SMOOTH PRIOR TO BLASTING AND PAINTING OPERATION.

REPAIR SEQUENCE:

STEEL DIAPHRAGM CHANNELS AND/OR STIFFENERS MAY BE TEMPORARILY REMOVED, IF NECESSARY, AND REPLACED AFTER BEAM REPAIR.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE. PLATE THE DAMAGED BEAM WEB AND CUT OUT BY APPROPRIATE MEANS THE DAMAGED BEARING STIFFENER.

MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

REPLACEMENT CUT-TO-FIT BEAM SECTION SHALL BE NEW AND FROM SIMILAR SIZE ROLLED BEAM OR APPROVED EQUIVALENT PLATES. THE GRADE OF STEEL SHALL BE AASHTO M270, GRADE 36 OR BETTER.

INSTALL THE CUT-TO-FIT SECTION, FULLY WELD ALONG TOP AND SIDES OF PLATE USING FULL PENETRATION WELDS.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS WILL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM REPAIR PROCESS.

CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.

FOR CLEANING AND PAINTING, SEE PROJECT SPECIAL PROVISIONS.

AFTER GIRDERS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE CAST BACK. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR". FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BEAM PLATING AND REPAIR DETAILS					
REVISIONS					
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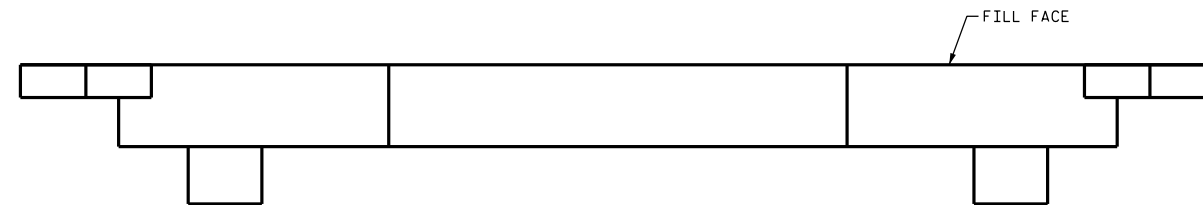
John A. Yannaccone

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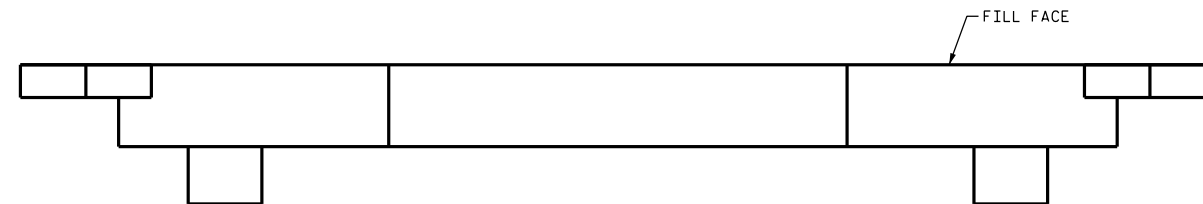
PLAN

ELEVATION

END BENT 1

DAMAGED AREA

NO REPAIRS NOTED DURING INSPECTION BY STRUCTURES MANAGEMENT UNIT.
THE CONTRACTOR AND ENGINEER SHALL INSPECT THE END BENTS PRIOR TO
BEGINNING WORK.



PLAN

ELEVATION

END BENT 2

SUMMARY OF QUANTITIES				
REPAIRS END BENT 1		QUANTITIES		
		ESTIMATE	ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		
CAP (VERTICAL, FACE)	0.0			
CAP (HORIZONTAL, UNDERSIDE & TOP)	0.0			
COLUMN	0.0			
SUMMARY OF QUANTITIES				
REPAIRS END BENT 2		QUANTITIES		
		ESTIMATE	ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		
CAP (VERTICAL, FACE)	0.0			
CAP (HORIZONTAL, UNDERSIDE & TOP)	0.0			
COLUMN	0.0			

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR
DETAILS" SHEET.

PROJECT NO. BP-5500N
ALAMANCE COUNTY
 BRIDGE NO. 42

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

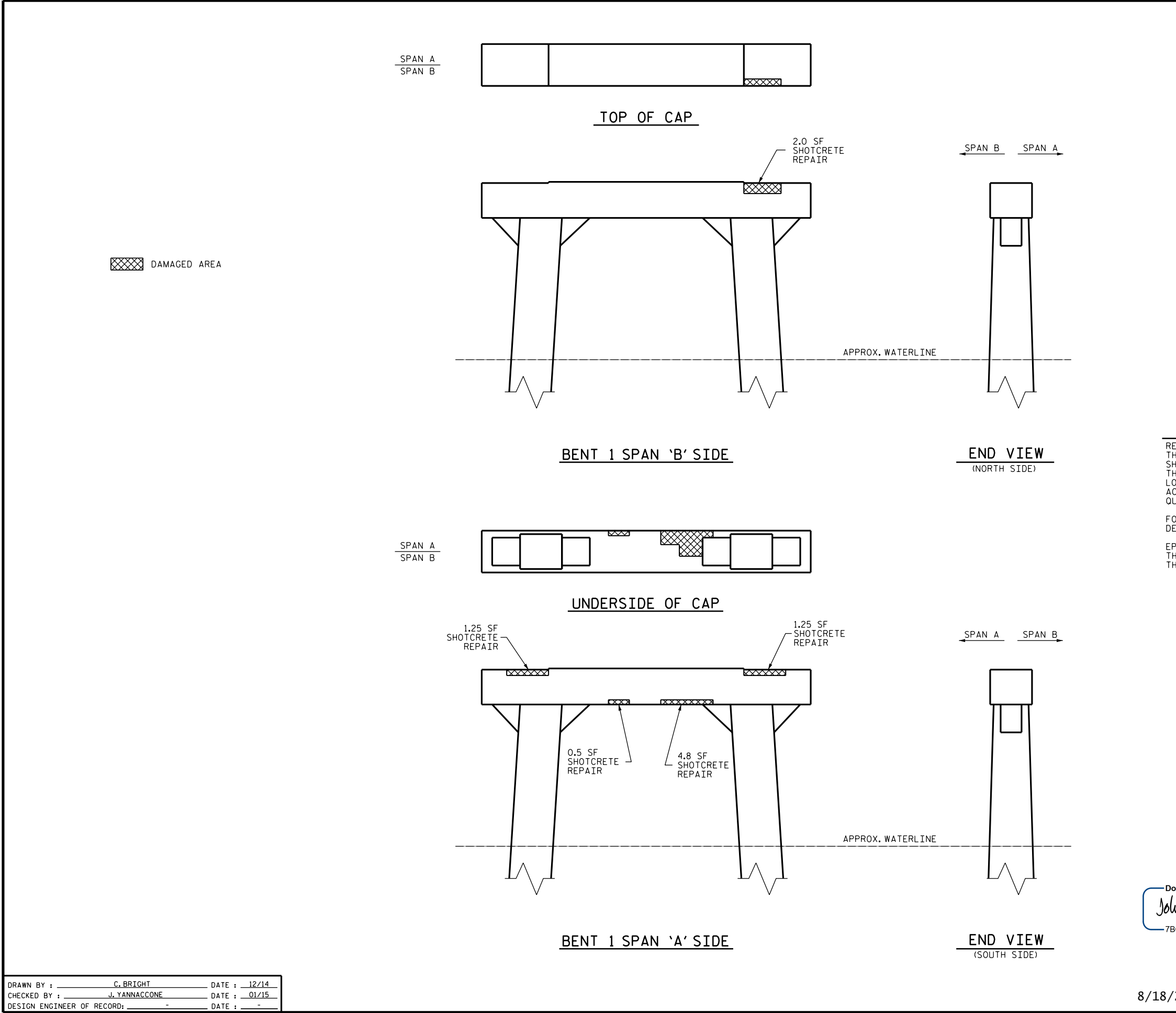
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John A. Yannaccone
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SEAL
32492
NORTH CAROLINA
PROFESSIONAL
ENGINEER
JOHN A. YANNACCON

8/18/2015



SUMMARY OF QUANTITIES				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL)	2.5	0.7		
CAP (HORIZONTAL, CORNER)	7.3	2.7		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT		LN. FT	
CAP (VERTICAL FACE)	0.0			
CAP (HORIZONTAL, UNDERSIDE & TOP)	0.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT		SQ. FT	
TOP OF BENT CAP	59			

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES

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FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

SHEET 1 OF 3

DocuSigned by:
John A. Yannaccone
7BC36E9C6894F7E
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
BENT 1
REVISIONS
NO. BY: DATE: NO. BY: DATE:
1 3
2 4
8/18/2015
SEAL
32492
JOHN A. YANNACCONI
ENGINEER

DRAWN BY : C. BRIGHT DATE : 12/14
CHECKED BY : J. YANNACCONI DATE : 01/15
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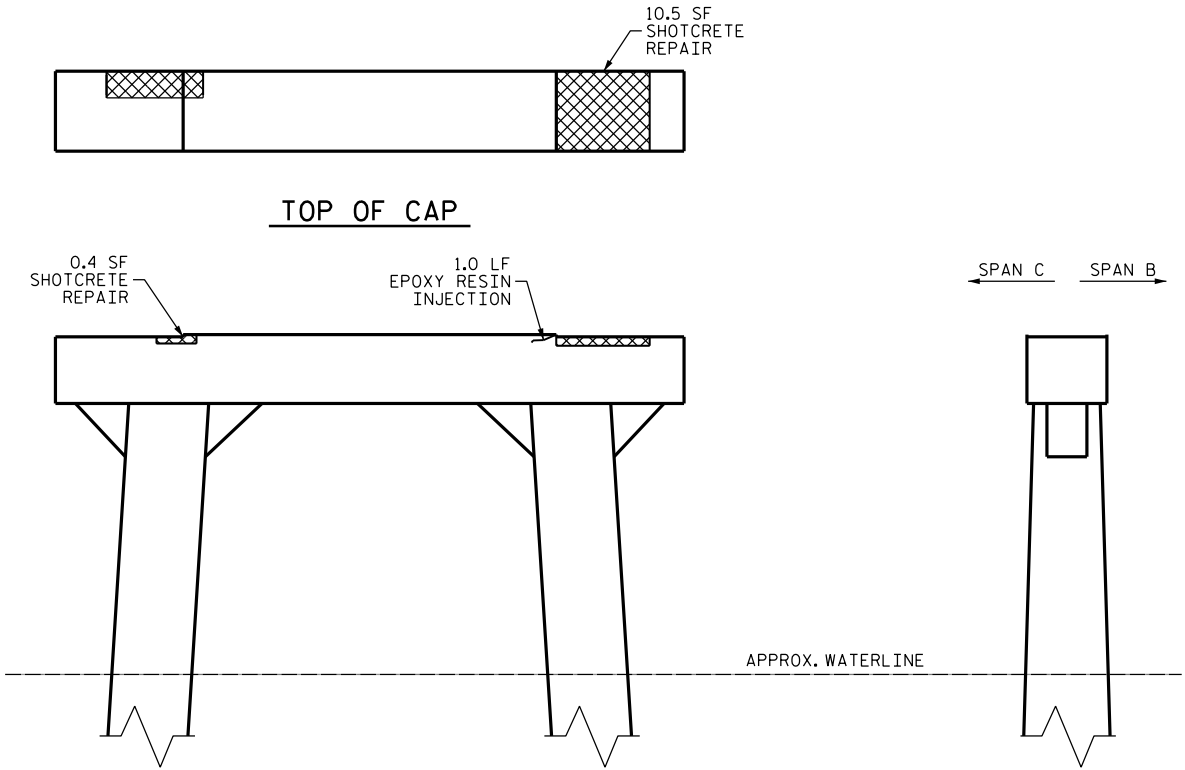
STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

RALEIGH

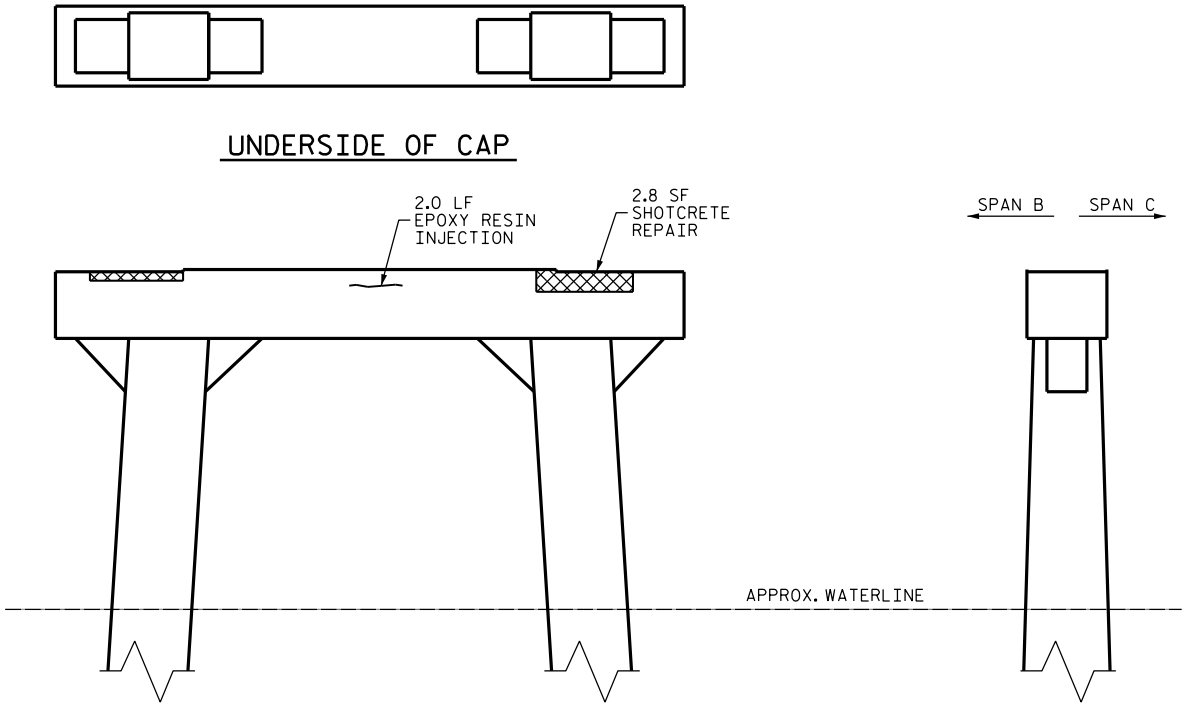
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16	
1			3			TOTAL SHEETS	
2			4			34	



BENT 2 SPAN 'C' SIDE

END VIEW
(NORTH SIDE)



BENT 2 SPAN 'B' SIDE

END VIEW
(SOUTH SIDE)

SUMMARY OF QUANTITIES

REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL)	0.4	0.1		
CAP (HORIZONTAL, CORNER)	13.3	5.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP (VERTICAL FACE)		3.0		
CAP (HORIZONTAL, UNDERSIDE & TOP)		0.0		
COLUMN		0.0		
EPOXY COATING		SQ. FT		SQ. FT
TOP OF BENT CAP		59		

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

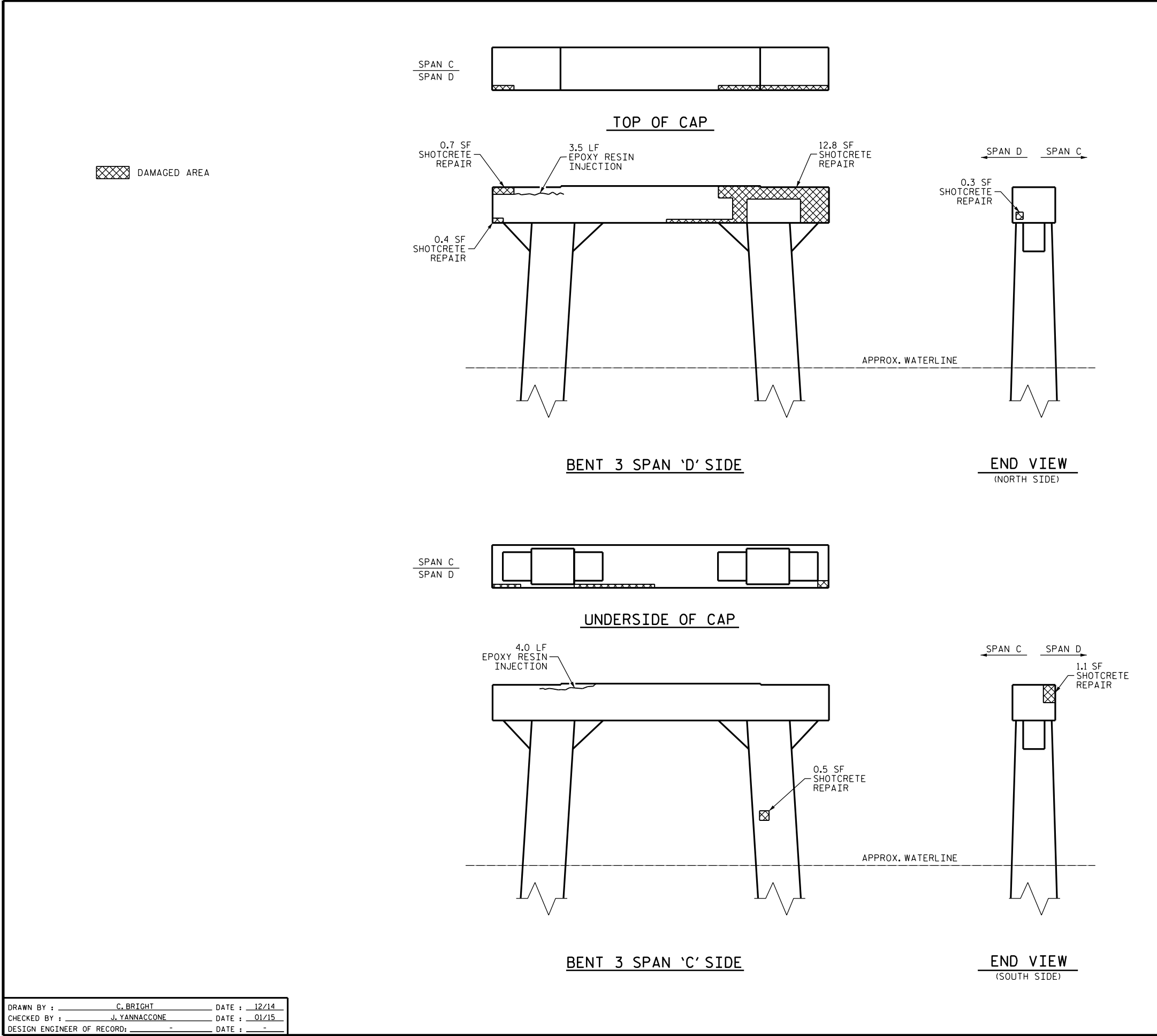
SHEET 2 OF 3

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John A. Yannaccone
7BC36E9C6045C
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
BENT 2
REVISIONS
NO. BY: DATE: NO. BY: DATE:
1 3
2 4
8/18/2015
SEAL
32492
JOHN A. YANNACCONI
ENGINEER

DRAWN BY : C. BRIGHT DATE : 12/14
CHECKED BY : J. YANNACCONI DATE : 01/15
DESIGN ENGINEER OF RECORD: - DATE : -

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J. Yannaccone

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-17
2			4			TOTAL SHEETS 34



SUMMARY OF QUANTITIES				
REPAIRS BENT 3		QUANTITIES		
		ESTIMATE		ACTUAL
SHOTCRETE REPAIRS		AREA SF	VOLUME CF	AREA SF VOLUME CF
CAP (VERTICAL)		13.1	3.8	
CAP (HORIZONTAL, CORNER)		2.2	0.9	
COLUMN		0.5	0.2	
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP (VERTICAL FACE)		7.5		
CAP (HORIZONTAL, UNDERSIDE & TOP)		0.0		
COLUMN		0.0		
EPOXY COATING		SQ. FT		SQ. FT
TOP OF BENT CAP		59		

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

PROJECT NO. BP-5500N
ALAMANCE COUNTY
BRIDGE NO. 42

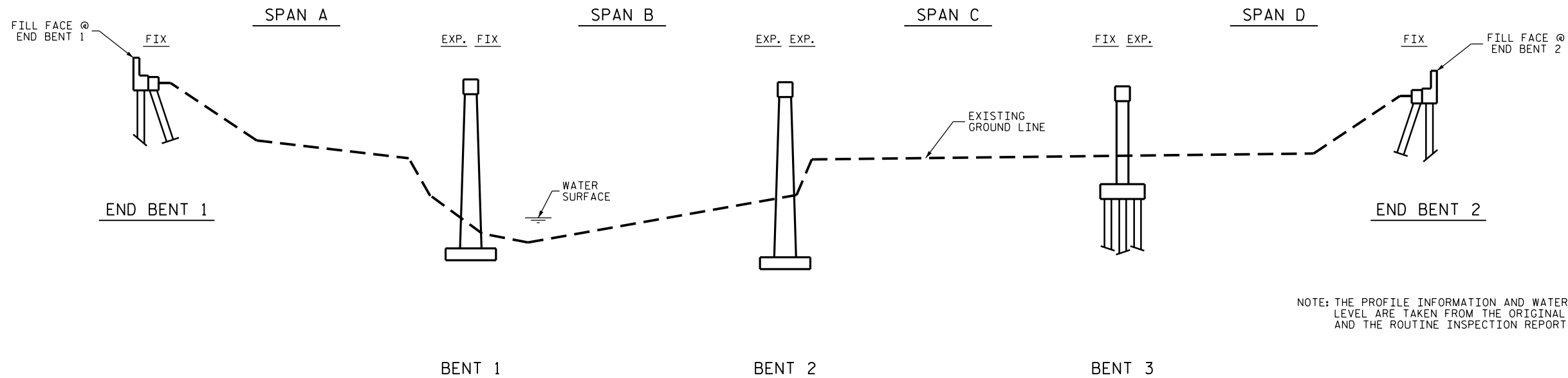
SHEET 3 OF 3

DocuSigned by:
John A. Yannaccone
7BC36E9C-6B94-404E-8000-000000000000
STATE OF NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL
32492
JOHN A. YANNACCONI

8/18/2015

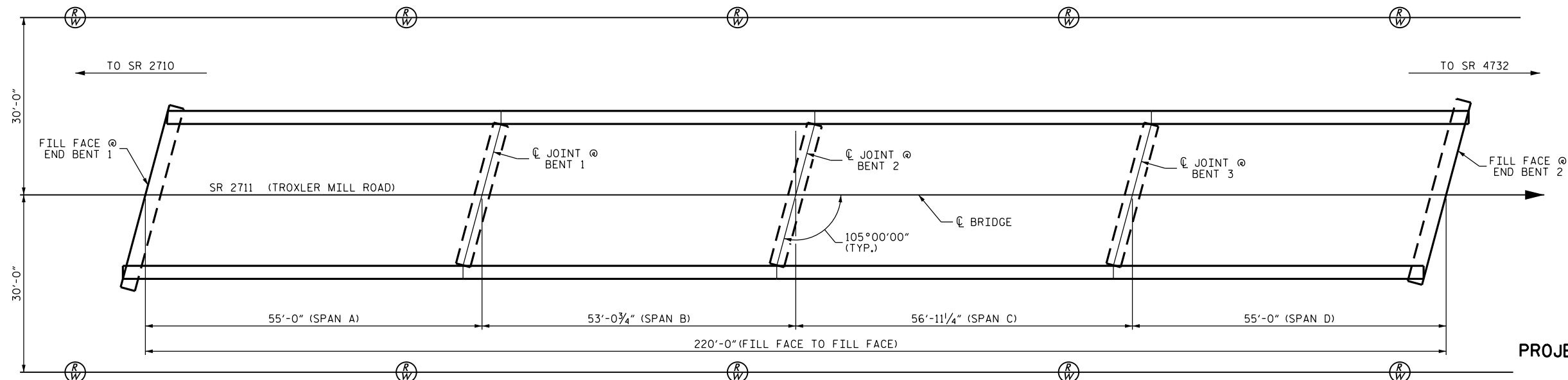
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 3					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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SHEET NO.					TOTAL SHEETS
S-18					34

DRAWN BY : C. BRIGHT DATE : 12/14
CHECKED BY : J. YANNACCONI DATE : 01/15
DESIGN ENGINEER OF RECORD: - DATE : -



NOTE: THE PROFILE INFORMATION AND WATER SURFACE LEVEL ARE TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 06/05/14.

SECTION ALONG CL ROADWAY



SCOPE OF WORK

- CLEAN/PAINT STEEL I- BEAMS AND BEARINGS.
- EPOXY INJECTION OF CONCRETE CRACKS.
- CLEAN AND REPAIR REBAR IN CONCRETE REPAIR AREAS.
- PERFORM SHOTCRETE REPAIRS IN PREPARED AREAS.
- REMOVE EXISTING ASPHALT CONCRETE WEARING SURFACE.
- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND HYDRO-DEMOLITION METHODS.
- DEMOLISH EXISTING BRIDGE DECK JOINTS.
- OVERLAY PREPARED BRIDGE DECK WITH LATEX MODIFIED CONCRETE.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL JOINT SEALS.
- CONSTRUCT BRIDGE APPROACH FILL AT END BENTS.
- MILL AND PAVE ASPHALT APPROACHES.
- GROOVE LATEX MODIFIED CONCRETE BRIDGE DECK.

PLAN

PROJECT NO. BP-5500N
GUILFORD COUNTY
 BRIDGE NO. 184

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE ON SR 2711 (TROXLER MILL ROAD) OVER HAW RIVER					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-19
TOTAL SHEETS					34

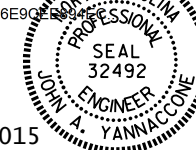
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 CHECKED BY : J. YANNACCONE DATE : 01/15
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DocuSigned by:

John A. Yannaccone

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8/18/2015



LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

FOR OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.

ROADWAY MILLING IS INCLUDED TO ENSURE A SMOOTH TRANSITION ONTO THE BRIDGE FLOOR. THE CONTRACTOR SHALL MILL AS REQUIRED TO PROVIDE A SMOOTH TRANSITION TO THE ROADWAY AT BOTH ENDS OF THE BRIDGE.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.

FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING REPAIR OF BRIDGE DECKS.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.

FOR PAINTING CONTAINMENT, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING OF BRIDGE, SEE SPECIAL PROVISIONS.

FOR POLLUTION CONTROL, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" HIGHWAY DESIGN BRANCH - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY, 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED PART OF THESE PLANS:

STD. NO.	TITLE
DIVISION 4 - MAJOR STRUCTURES	
422.11	BRIDGE APPROACH FILLS
DIVISION 8 - INCIDENTALS	
815.03	PIPE UNDERDRAIN AND BLIND DRAIN

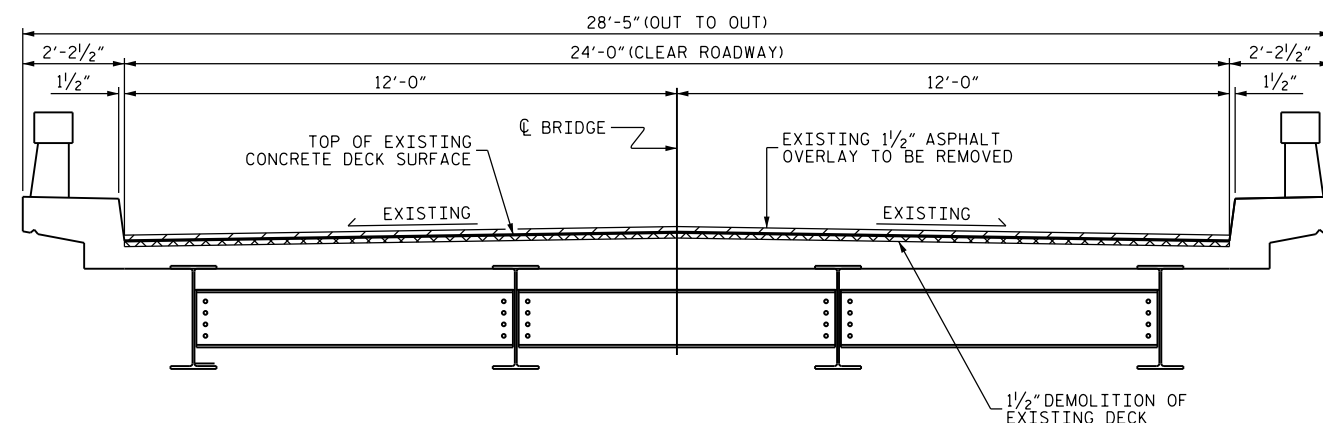
PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

SHEET 2 OF 2

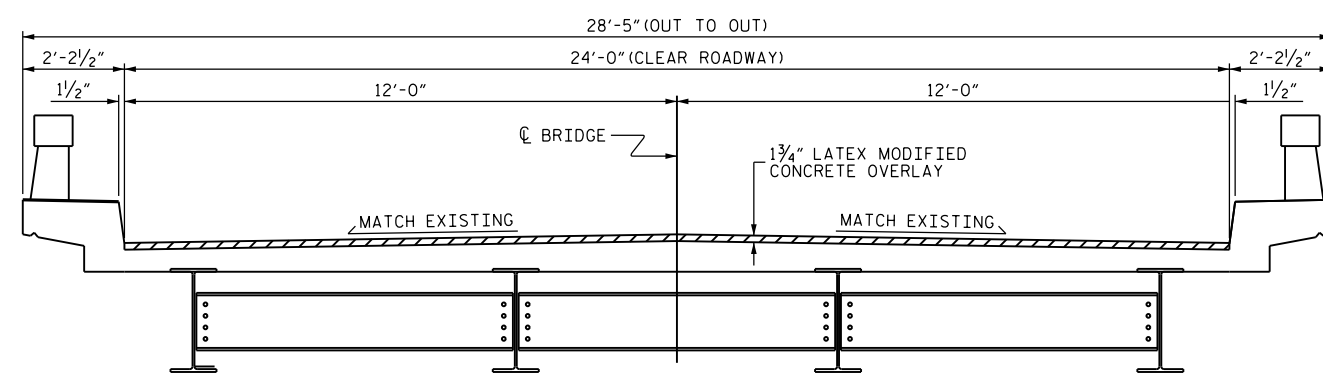
DocuSigned by:
John A. Yannaccone
7BC36E9C68B2
NORTH CAROLINA
PROFESSIONAL
SEAL
32492
ENGINEER
JOHN A. YANNACCONI
8/18/2015

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING FOR BRIDGE ON SR 2711 (TROXLER MILL ROAD) OVER HAW RIVER					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					S-20
					34

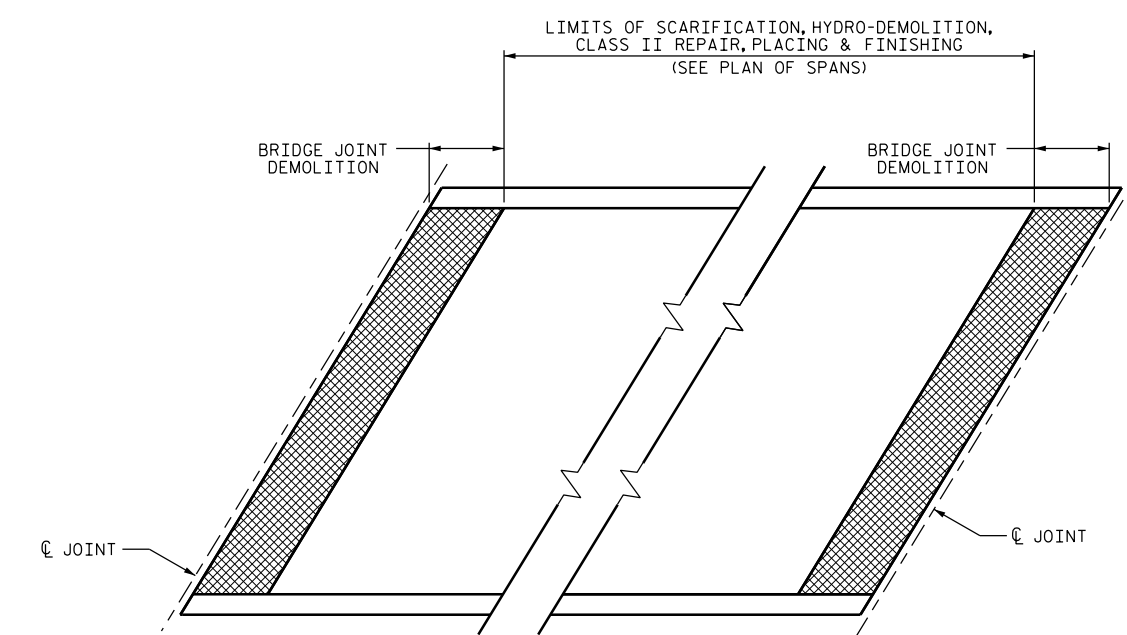
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CHECKED BY :	J. YANNACCONI	DATE :	01/15
DESIGN ENGINEER OF RECORD:	-	DATE :	-



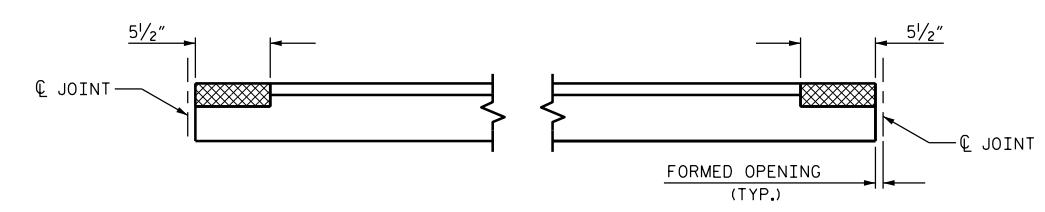
TYPICAL SECTION
(EXISTING)



TYPICAL SECTION
(PROPOSED)

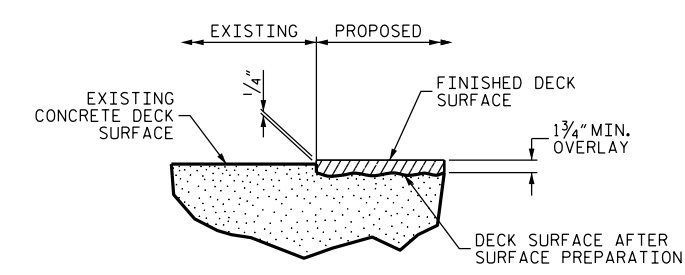


PLAN



ELEVATION

**LIMITS OF BRIDGE JOINT DEMOLITION AND
OVERLAY PREPARATION AND PLACEMENT**



**DETAIL FOR LATEX
MODIFIED CONCRETE OVERLAY**

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TYPICAL SECTION AND SURFACE PREPARATION DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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SHEET NO.					S-21
TOTAL SHEETS					34

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CHECKED BY : J. YANNACCONE DATE : 01/15
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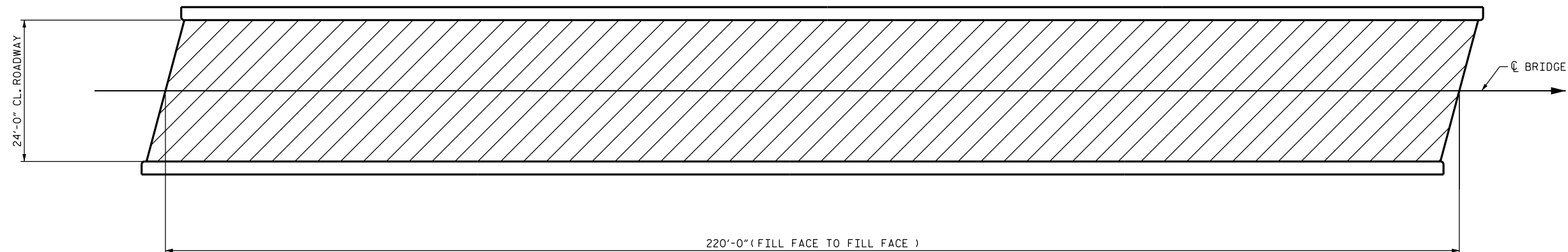
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JYannacccone

DocuSigned by:
John A. Yannacccone
7BC36E9C-8804-484E-8000-000000000000
SEAL
32492
ENGINEER
JOHN A. YANNACCONE

8/18/2015

← TO SR 2710

TO SR 4732 →



PLAN

(FOR PAY LIMITS AT BENTS,
SEE "TYPICAL SECTION AND SURFACE PREPARATION DETAILS" SHEET)

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SURFACE PREPARATION PLAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-22
TOTAL SHEETS					34

DocuSigned by:

John A. Yannaccone

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8/18/2015

DRAWN BY : R. PUTK DATE : 01/15
CHECKED BY : J. YANNACCONI DATE : 01/15
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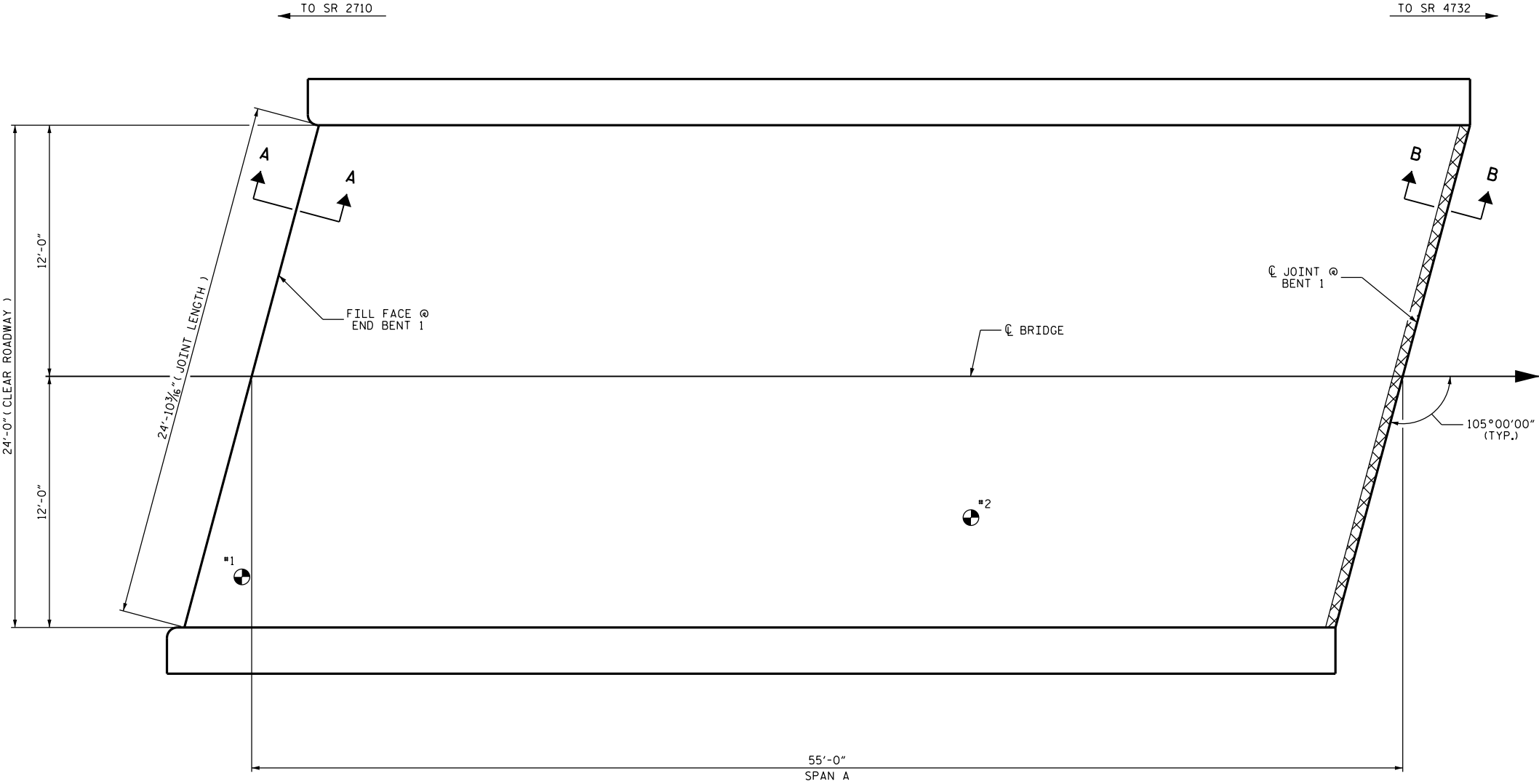
SUMMARY OF QUANTITIES				
TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	146 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	146 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CLASS III SURFACE PREPARATION	0.5 SY			
BRIDGE JOINT DEMOLITION	11.5 SF			
EPOXY RESIN INJECTION	0.0 LF			
CONCRETE FOR DECK REPAIR	2.0 CF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- APPROX. CLASS II AREA
- APPROX. CLASS III AREA
- BRIDGE JOINT DEMOLITION
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- #1

TEST LOCATION



PLAN

(FOR SECTION VIEWS, SEE "JOINT DETAILS" SHEET)

TEST LOCATION	ASPHALT THICKNESS (INCH)	DEPTH TO REBAR (INCH)	CONCRETE COVER (INCH)	CONCRETE STRENGTH (PSI)
#1	1 5/8"	3 1/2"	1 7/8"	*
#2	1 1/2"	2 7/8"	1 3/8"	*

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 4/22/2014.
* CONCRETE COMPRESSIVE STRENGTH COULD NOT BE TESTED DUE TO THE PRESENCE OF ASPHALT OVERLAY.

DRAWN BY :	R. PUTIK	DATE :	12/14
CHECKED BY :	J. YANNACCONE	DATE :	12/14
DESIGN ENGINEER OF RECORD:	-	DATE :	-

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JYannacccone

DocuSigned by:
John A. Yannacccone
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SEAL
32492
JOHN A. YANNACCONE
PROFESSIONAL ENGINEER
NORTH CAROLINA

8/18/2015

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

SHEET 1 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.	
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REVISIONS						TOTAL SHEETS	
NO.	BY:	DATE:	NO.	BY:	DATE:	34	
1			3				
2			4				



SUMMARY OF QUANTITIES

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	138 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	138 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
CLASS III SURFACE PREPARATION	0.5 SY	
BRIDGE JOINT DEMOLITION	23.0 SF	
EPOXY RESIN INJECTION	0.0 LF	
CONCRETE FOR DECK REPAIR	2.0 CF	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		

	ESTIMATE	ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK
REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE,
MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT.
SEE REPAIR DETAILS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK
REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE
INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED
CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

-  APPROX. CLASS II AREA
 APPROX. CLASS III AREA
 BRIDGE JOINT DEMOLITION
 UNDERSIDE REPAIR
 DIAPHRAGM REPAIR
 TEST LOCATION

TEST LOCATION	ASPHALT THICKNESS (INCH)	DEPTH TO REBAR (INCH)	CONCRETE COVER (INCH)	CONCRETE STRENGTH (PSI)
#3	1 3/8"	2 3/4"	1 3/8"	*
#4	1 3/8"	3 1/4"	1 1/8"	*

INFORMATION IN CHART TAKEN FROM DECK EVALUATION
DATED 4/22/2014.
* CONCRETE COMPRESSIVE STRENGTH COULD NOT BE TESTED
DUE TO THE PRESENCE OF ASPHALT OVERLAY.

DRAWN BY : _____ R. PUTEK _____ DATE : 12/14
CHECKED BY : _____ J. YANNACCONI _____ DATE : 12/14
DESIGN ENGINEER OF RECORD: _____ - _____ DATE : -

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javannaccone

PLAN

(FOR SECTION VIEWS, SEE "JOINT DETAILS" SHEET)

PROJECT NO. BP-5500N
GUILFORD COUNTY
 BRIDGE NO. 184

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN
SPAN B

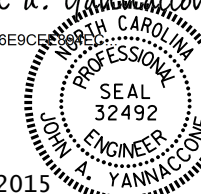
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

— DocuSigned by:

John A. Yammaccone

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8/18/2015



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			34



TEST LOCATION	ASPHALT THICKNESS (INCH)	DEPTH TO REBAR (INCH)	CONCRETE COVER (INCH)	CONCRETE STRENGTH (PSI)
#5	1 3/4"	3 1/4"	1 1/8"	*
#6	1 5/8"	3 1/4"	1 5/8"	*

INFORMATION IN CHART TAKEN FROM DECK EVALUATION
DATED 4/22/2014.
*CONCRETE COMPRESSIVE STRENGTH COULD NOT BE TESTED
DUE TO THE PRESENCE OF ASPHALT OVERLAY.

DRAWN BY : R.PUTEK DATE : 12/14
 CHECKED BY : J.YANNACCONE DATE : 12/14
 DESIGN ENGINEER OF RECORD: - DATE : -

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Javannaccone

SUMMARY OF QUANTITIES

TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	149 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	149 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
CLASS III SURFACE PREPARATION	0.5 SY	
BRIDGE JOINT DEMOLITION	23.0 SF	
EPOXY RESIN INJECTION	0.0 LF	
CONCRETE FOR DECK REPAIR	2.0 CF	






UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		

	ESTIMATE	ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK
REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE,
MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT.
SEE REPAIR DETAILS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK
REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE
INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED
CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- | | |
|---|-------------------------|
|  | APPROX. CLASS II AREA |
|  | APPROX. CLASS III AREA |
|  | BRIDGE JOINT DEMOLITION |
|  | UNDERSIDE REPAIR |
|  | DIAPHRAGM REPAIR |
|  | TEST LOCATION |

PROJECT NO. BP-5500N
GUILFORD COUNTY
 BRIDGE NO. 184

SHEET 3 OF 4


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN
SPAN C

DocuSigned by:

John A. Harvason

7BC36E9CE894E1



8/18/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25 TOTAL SHEETS 34
1			3			
2			4			

SUMMARY OF QUANTITIES				
TOP OF DECK REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	146 SY			
HYDRO-DEMOLITION OF BRIDGE DECK	146 SY			
CLASS II SURFACE PREPARATION	0.0 SY			
CLASS III SURFACE PREPARATION	0.5 SY			
BRIDGE JOINT DEMOLITION	11.5 SF			
EPOXY RESIN INJECTION	0.0 LF			
CONCRETE FOR DECK REPAIR	2.0 CF			
UNDERSIDE OF DECK REPAIRS				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF			

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- APPROX. CLASS II AREA
- APPROX. CLASS III AREA
- BRIDGE JOINT DEMOLITION
- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- #1

TEST LOCATION

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

SHEET 4 OF 4

TEST LOCATION	ASPHALT THICKNESS (INCH)	DEPTH TO REBAR (INCH)	CONCRETE COVER (INCH)	CONCRETE STRENGTH (PSI)
#7	1"	2 1/4"	1 1/4"	*
#8	1 3/8"	2 1/4"	7/8"	*

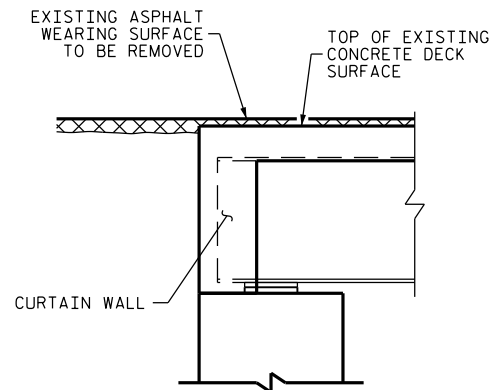
INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 4/22/2014.
* CONCRETE COMPRESSIVE STRENGTH COULD NOT BE TESTED DUE TO THE PRESENCE OF ASPHALT OVERLAY.

DRAWN BY :	R. PUTIK	DATE :	12/14
CHECKED BY :	J. YANNACCONE	DATE :	12/14
DESIGN ENGINEER OF RECORD:	-	DATE :	-

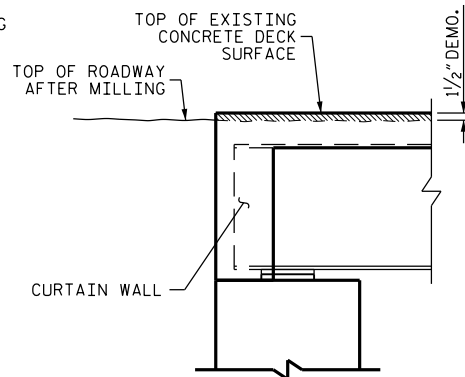
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JYannacccone

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John A. Yannacccone
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NORTH CAROLINA
PROFESSIONAL
SEAL
32492
JOHN A. YANNACCONE
8/18/2015

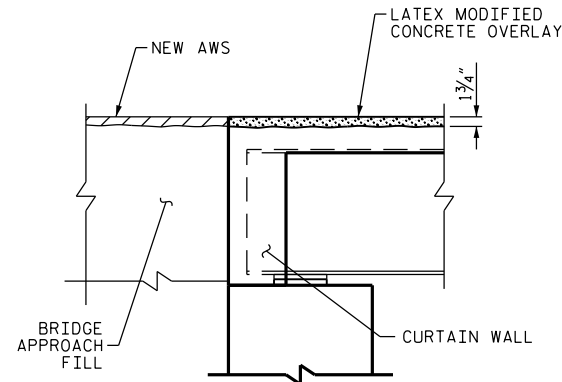
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1			3			TOTAL SHEETS	
2			4			34	



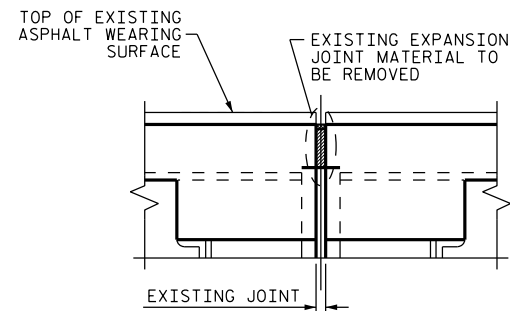
SECTION A-A
(EXISTING)



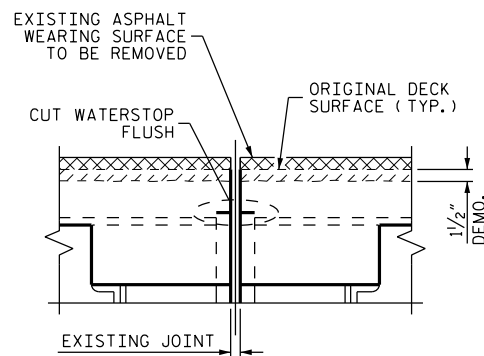
SECTION A-A
(MINIMUM EXISTING
JOINT DEMOLITION)



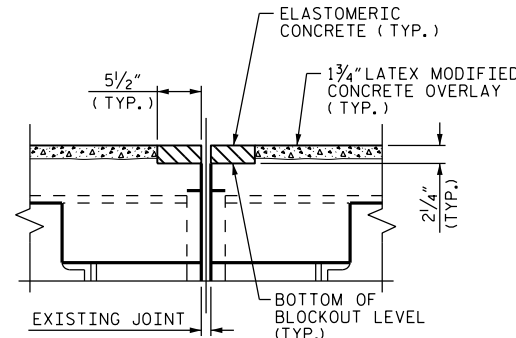
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(PROPOSED)



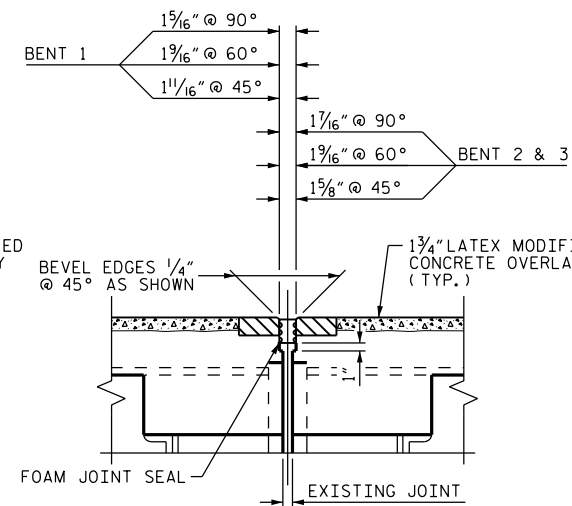
SECTION B-B
(EXISTING)



SECTION B-B
(MINIMUM EXISTING
JOINT DEMOLITION)



SECTION B-B
(PROPOSED JOINT
PRE-SAWED DIMENSIONS)



SECTION B-B
(PROPOSED FOAM
JOINT SEAL)

NOTES:

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

THE INSTALLED FOAM JOINT SEAL SHALL BE WATER TIGHT.

NOMINAL UNCOMPRESSED SEAL WIDTH OF FOAM JOINT SEAL SHALL BEE 2" AT THE BENTS.

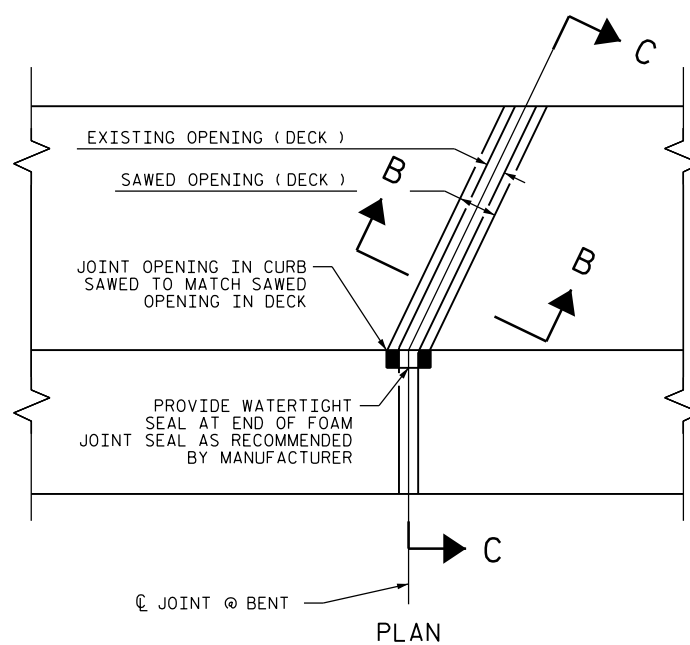
THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

ELASTOMERIC CONCRETE	
BENT 1	4.3 (CU. FT.)
BENT 2	4.3 (CU. FT.)
BENT 3	4.3 (CU. FT.)
* TOTAL	12.9 (CU. FT.)

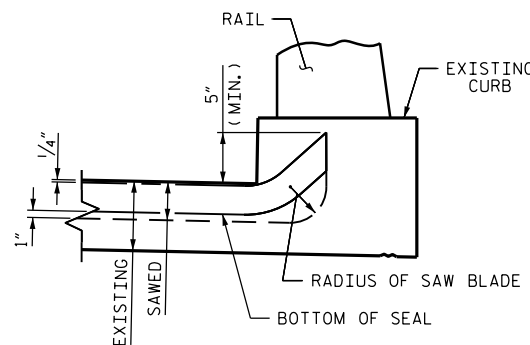
* BASED ON THE MINIMUM BLOCKOUT SHOWN.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED WITHIN 2" OF THE WATERSTOP, THE ENTIRE CONCRETE DEPTH TO THE WATERSTOP SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.

DEMOLISH BRIDGE JOINT TO THE NECESSARY DEPTH SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE, NOT LATEX MODIFIED CONCRETE.



PLAN



SECTION C-C

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

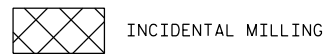
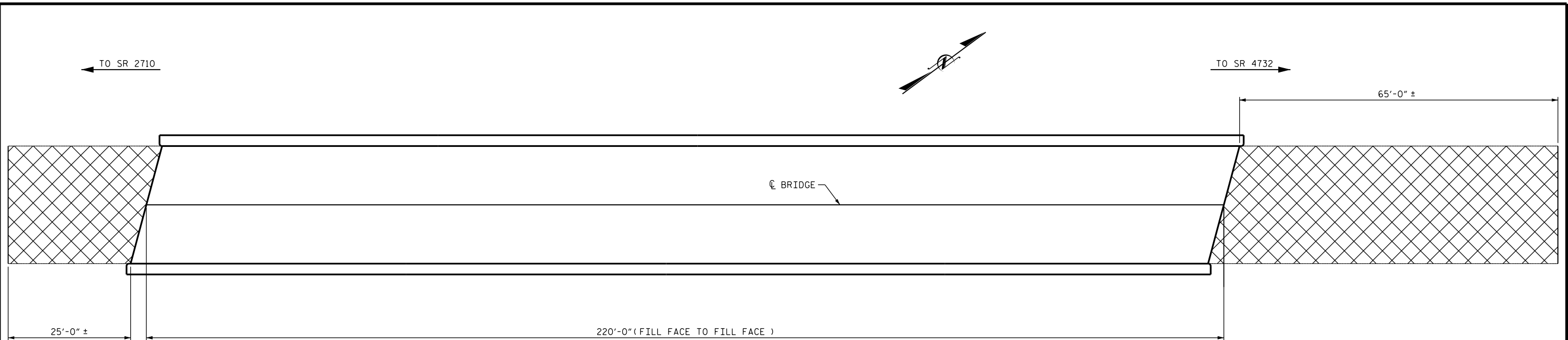
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JOINT DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-27
TOTAL SHEETS					34

DRAWN BY : R. PUTK DATE : 12/14
CHECKED BY : J. YANNACCONE DATE : 01/15
DESIGN ENGINEER OF RECORD: - DATE : -

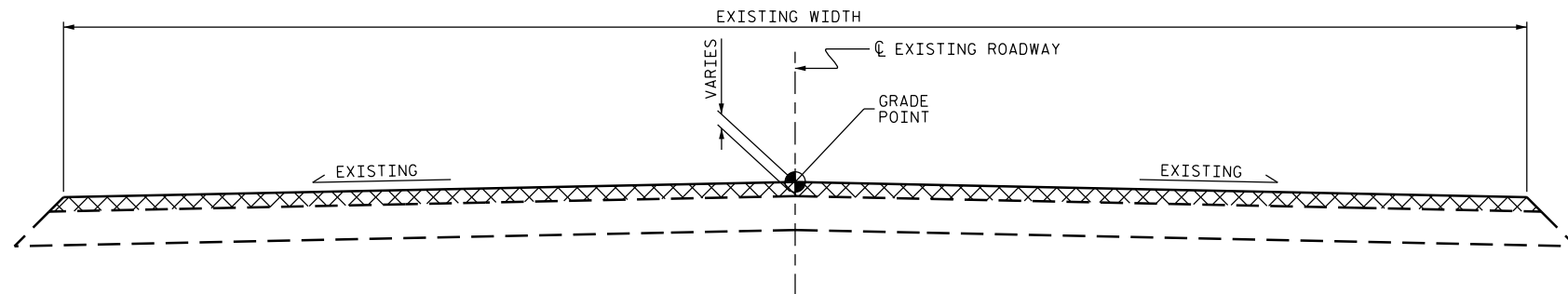
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JYannacccone

DocuSigned by:
John A. Yannacccone
7BC36E9C5B94F5E5
PROFESSIONAL
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ENGINEER
JOHN A. YANNACCONE

8/18/2015

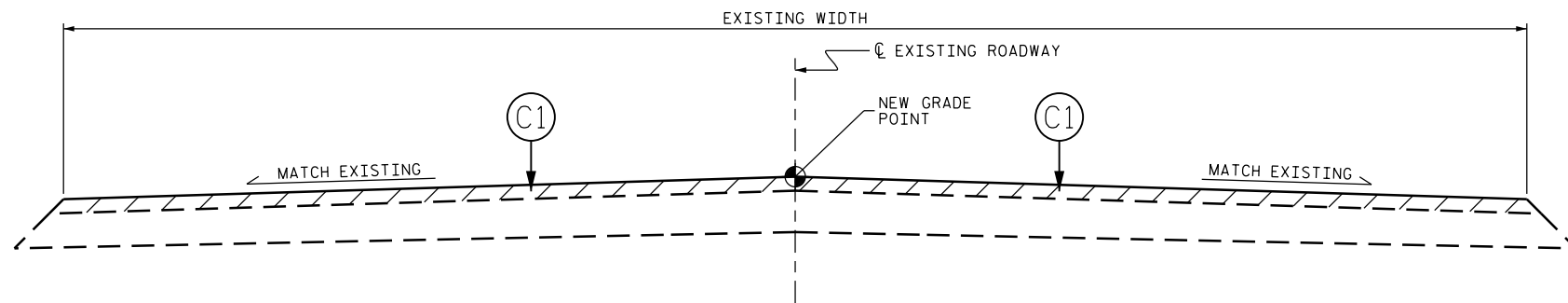


PLAN



TYPICAL ROADWAY MILLING SECTION

(MILL VARIABLE DEPTH)



TYPICAL ROADWAY SECTION

(SHOWING BEYOND LIMITS OF BRIDGE APPROACH FILL)

NOTES

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1 1/2" DEPTH OF NEW ASPHALT PAVEMENT. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. THE NEW ASPHALT PAVEMENT THICKNESS MAY EXCEED 1 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH.

DEPTH OF MILLING VARIES FROM 1 1/2" AT TIE-IN WITH ROADWAY PAVEMENT TO 2 3/4" AT FILL FACE AT END BENT.

SUMMARY OF QUANTITIES

	ESTIMATE	ACTUAL
INCIDENTAL MILLING	260 SQ. YDS.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	25 TONS	

C1

PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH MILLING
AND TYPICAL
ROADWAY SECTIONS

DocuSigned by:

John A. Yannaccone

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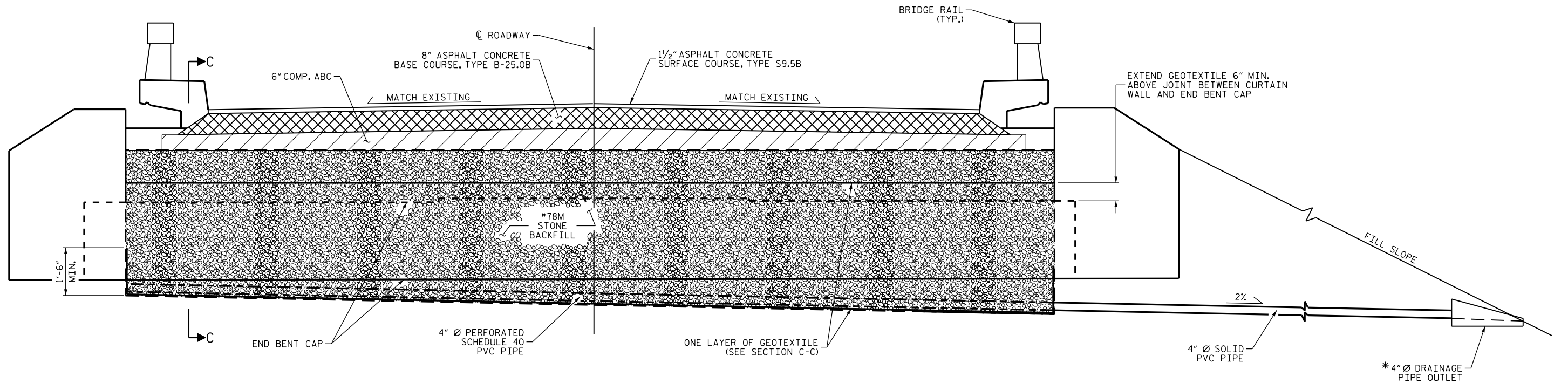


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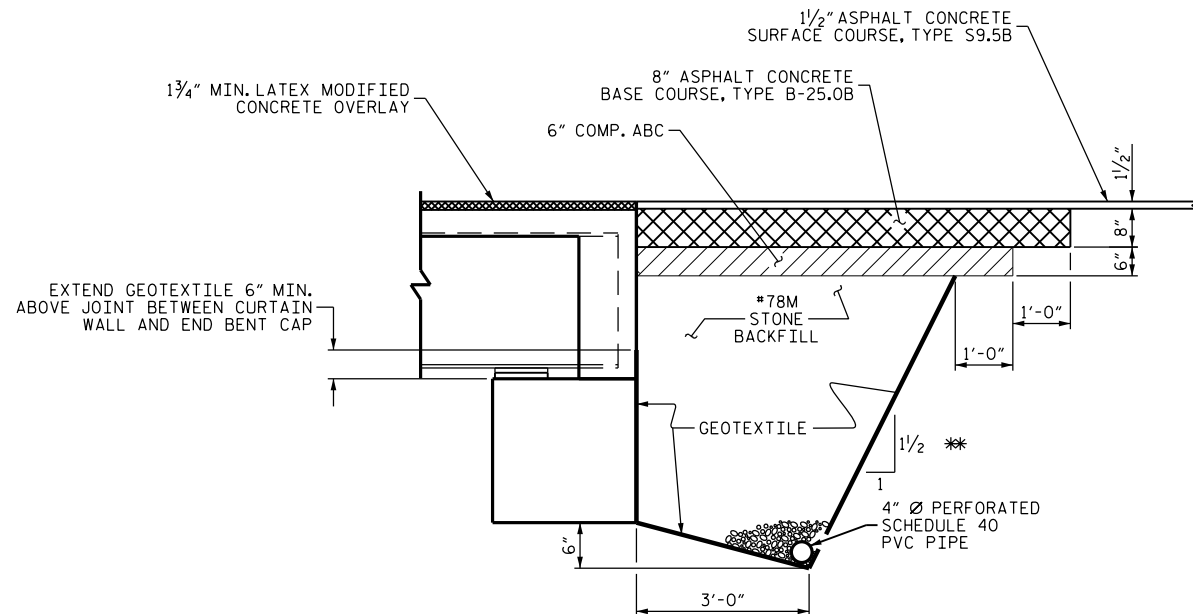
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JYannaccone

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-28
2			4			TOTAL SHEETS 34



SECTION AT END BENT 1
(END BENT 2 SIMILAR)



※ THE CONTRACTOR SHALL ADJUST THE SLOPE AS NEEDED FOR WEAK OR SATURATED SOILS.

SECTION C-C

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY STANDARD DRAWINGS.

GEOTEXTILE SHALL BE TYPE I IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF CURTAIN WALL.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

FOR BRIDGE APPROACH FILL, SEE SPECIAL PROVISIONS.

※ THE CONTRACTOR SHALL LOCATE THE PIPE OUTLET WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER. ANY PIPE ELBOWS REQUIRED WILL BE PAID FOR UNDER THE CONTRACT LUMP SUM BID ITEM, "BRIDGE APPROACH FILL - SUM REGIONAL TIER, BRIDGE #184".

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

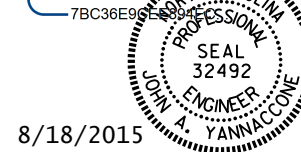
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BRIDGE APPROACH FILL DETAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-29					TOTAL SHEETS 34

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CHECKED BY : J. YANNACCONE DATE : 12/14
DESIGN ENGINEER OF RECORD: _____ DATE : _____

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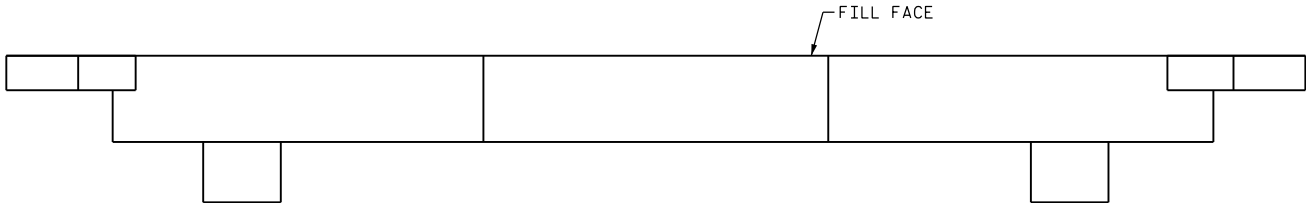
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John A. Yannacccone

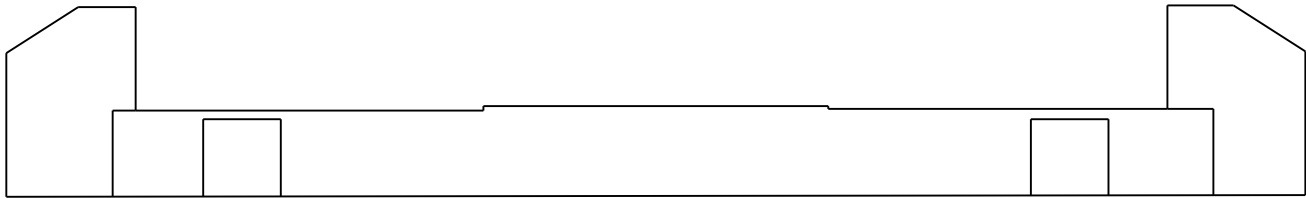


8/18/2015

NO REPAIRS NOTED FOR END BENT 1 DURING INSPECTION BY STRUCTURES MANAGEMENT UNIT. THE CONTRACTOR AND ENGINEER SHALL INSPECT THE END BENT PRIOR TO BEGINNING WORK.



PLAN

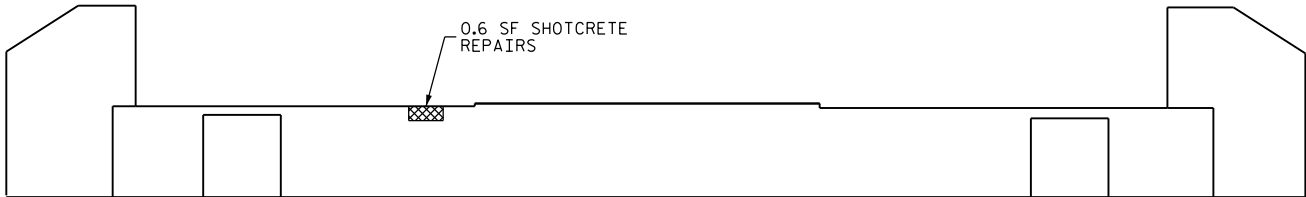


ELEVATION

END BENT 1



PLAN



ELEVATION

END BENT 2

SUMMARY OF QUANTITIES

REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
EPOXY RESIN INJECTION				LN. FT
CAP (VERTICAL, FACE)		0.0		
CAP (HORIZONTAL, UNDERSIDE & TOP)		0.0		

SUMMARY OF QUANTITIES

REPAIRS END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	1.2	0.3		
EPOXY RESIN INJECTION				LN. FT
CAP (VERTICAL, FACE)		0.0		
CAP (HORIZONTAL, UNDERSIDE & TOP)		0.0		

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR CAP REPAIRS, SEE "TYPICAL REPAIR DETAILS" SHEET.

DAMAGED AREA

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

DocuSigned by:
John A. Yannaccone
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NORTH CAROLINA
PROFESSIONAL
SEAL
32492
JOHN A. YANNACCONI
8/18/2015

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
END BENT 1 & 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					S-30
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DRAWN BY :	R.PIETEK	DATE :	12/14
CHECKED BY :	J.YANNACCONI	DATE :	12/14
DESIGN ENGINEER OF RECORD:	-	DATE :	-

SUMMARY OF QUANTITIES

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	1.3	0.3		
COLUMN	9.8	2.7		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP (VERTICAL FACE)		0.0		
CAP (HORIZONTAL, UNDERSIDE & TOP)		2.5		
COLUMN		0.0		
EPOXY COATING		SQ. FT		SQ. FT
TOP OF BENT CAP		61		

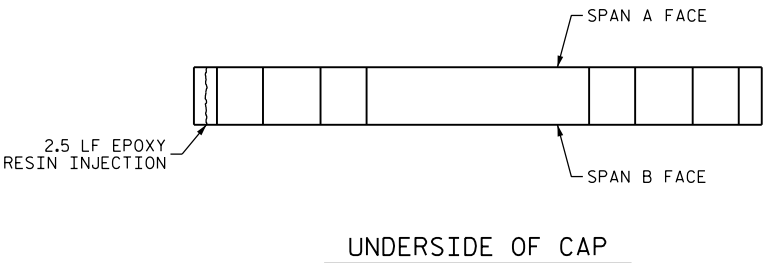
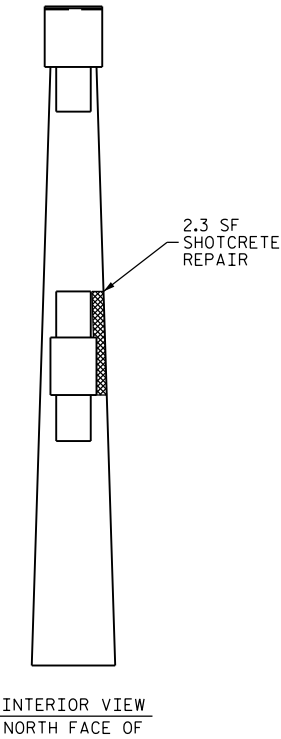
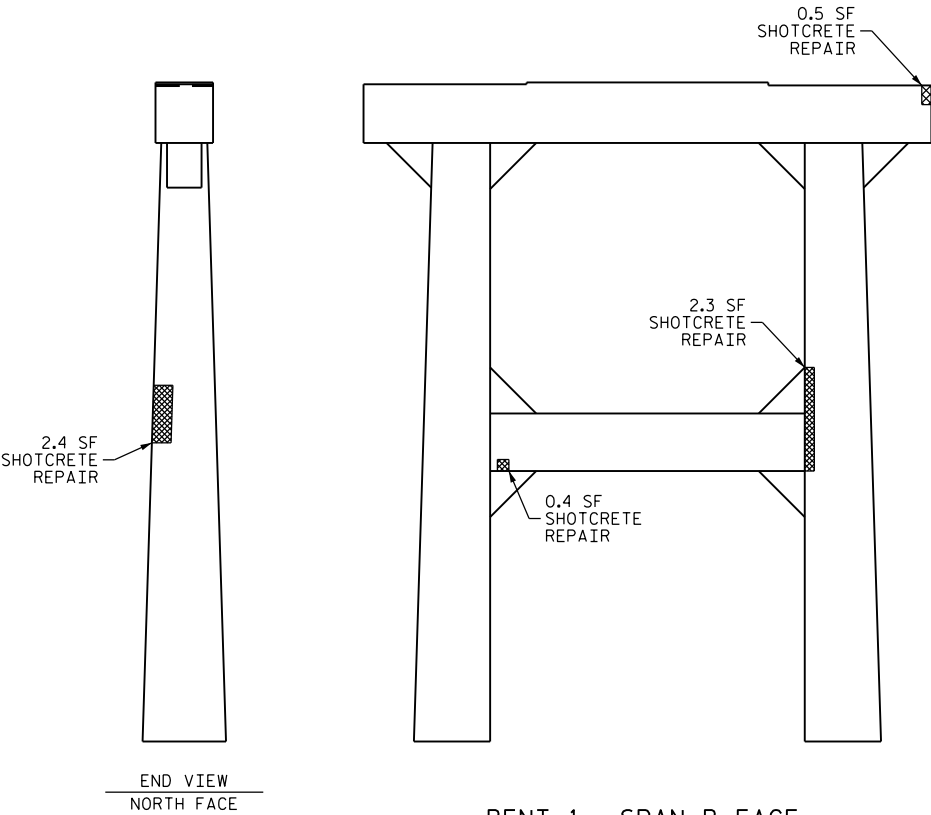
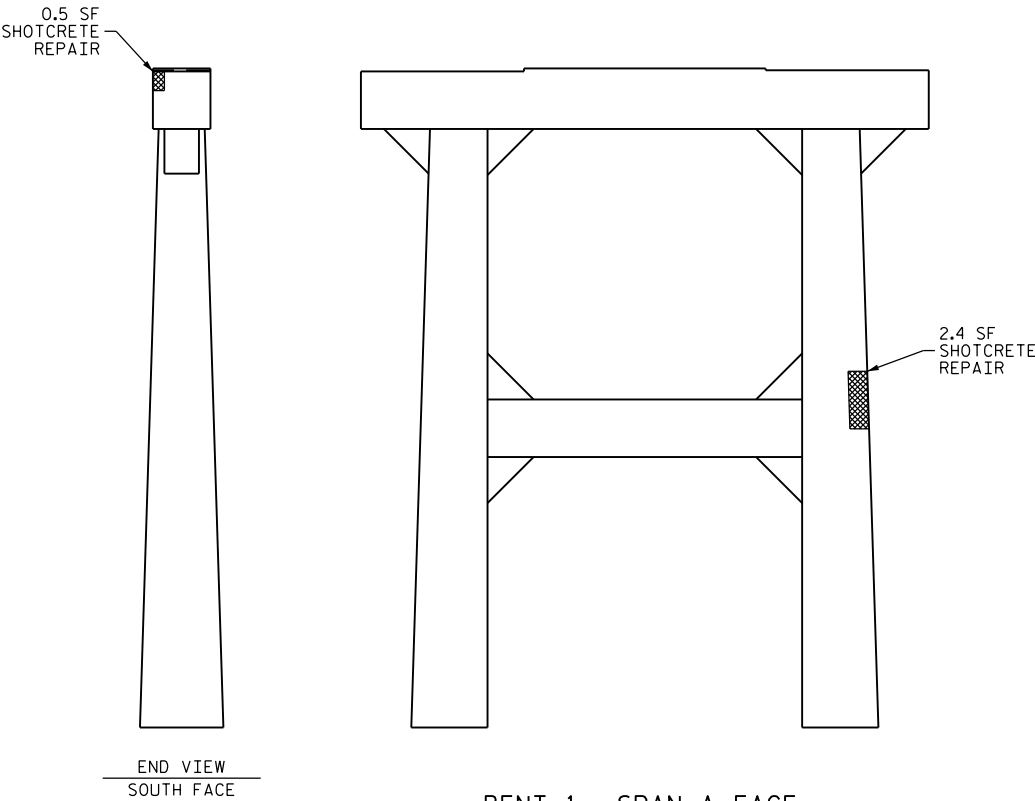
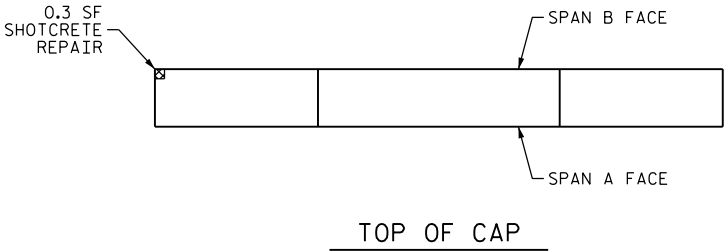
VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.



DAMAGED AREA

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

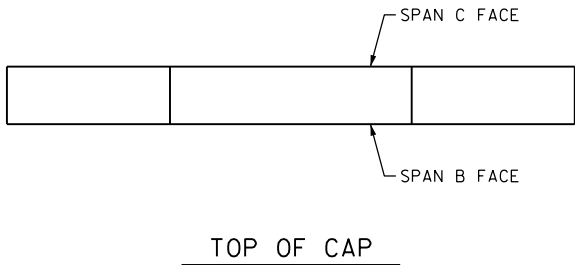
BENT 1

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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-31
2			4			TOTAL SHEETS 34

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SEAL
32492
JOHN A. YANNACCONI
ENGINEER

8/18/2015

DRAWN BY : R.PIETEK DATE : 12/14
CHECKED BY : J.YANNACCONI DATE : 12/14
DESIGN ENGINEER OF RECORD: - DATE : -



NOTES

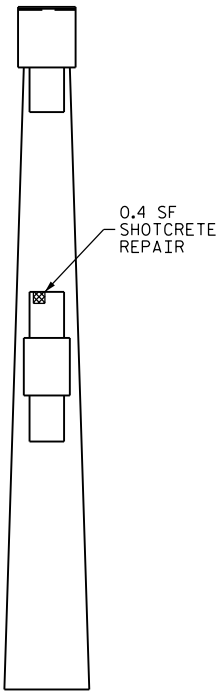
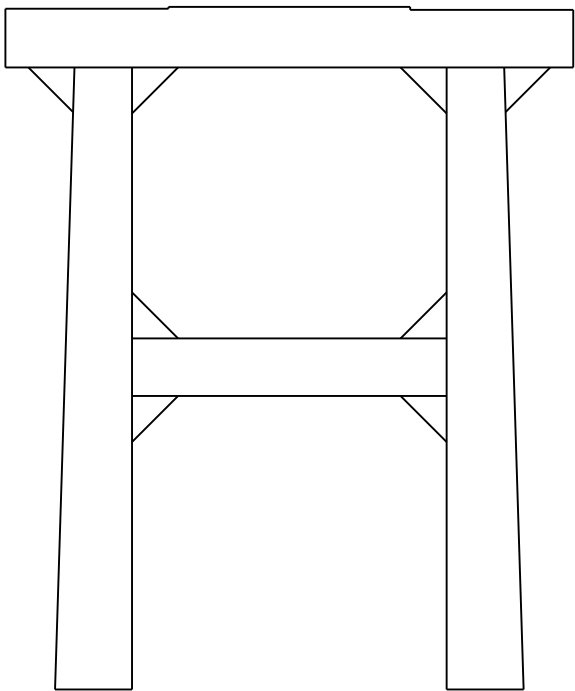
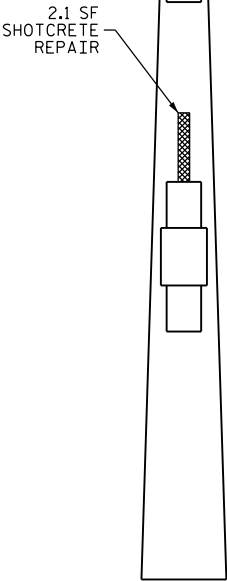
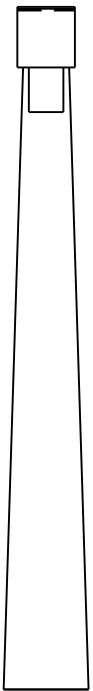
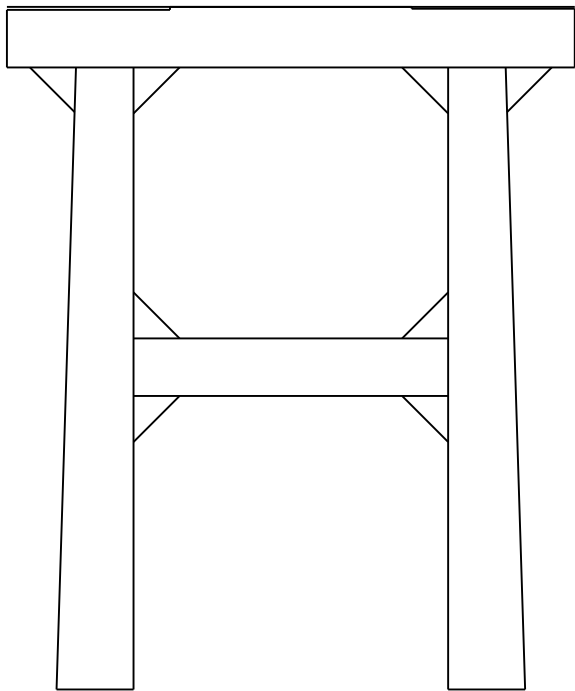
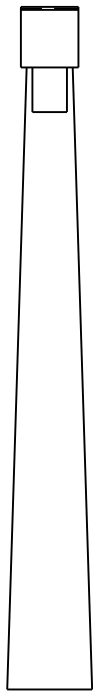
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

SUMMARY OF QUANTITIES				
REPAIRS BENT 2		QUANTITIES		
		ESTIMATE		ACTUAL
SHOTCRETE REPAIRS		AREA SF	VOLUME CF	AREA SF VOLUME CF
CAP (VERTICAL)		0.0	0.0	
CAP (HORIZONTAL, CORNER)		0.0	0.0	
COLUMN		2.5	1.1	
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP (VERTICAL FACE)			0.0	
CAP (HORIZONTAL, UNDERSIDE & TOP)			0.0	
COLUMN			0.0	
EPOXY COATING			SQ. FT	SQ. FT
TOP OF BENT CAP			61	

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



END VIEW
SOUTH FACE

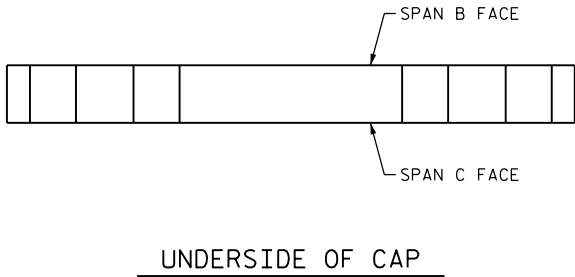
BENT 2 - SPAN B FACE

END VIEW
NORTH FACE

INTERIOR VIEW
NORTH COLUMN

BENT 2 - SPAN C FACE

INTERIOR VIEW
SOUTH COLUMN



UNDERSIDE OF CAP

DAMAGED AREA

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

SHEET 2 OF 3

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JOHN A. YANNACCONI

8/18/2015

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-32
2			4			TOTAL SHEETS 34

DRAWN BY : R.PIETEK DATE : 12/14
CHECKED BY : J.YANNACCONI DATE : 12/14
DESIGN ENGINEER OF RECORD: - DATE : -

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NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

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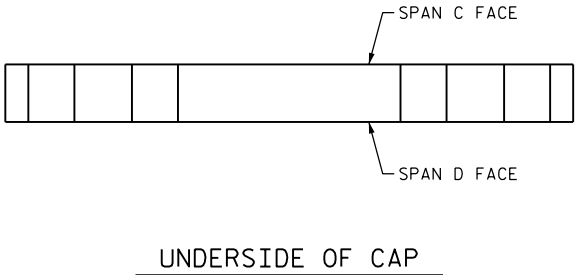
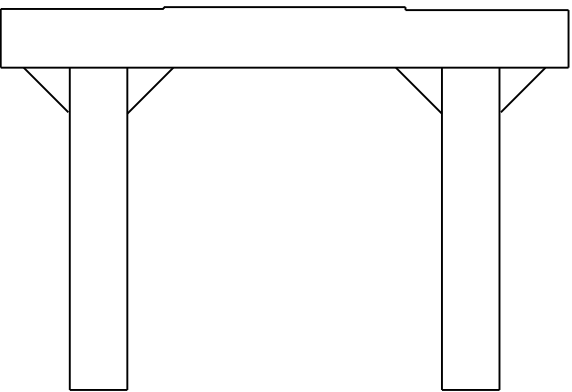
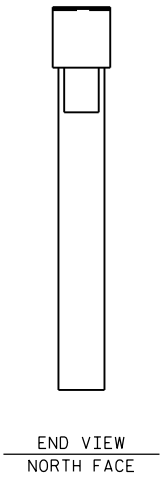
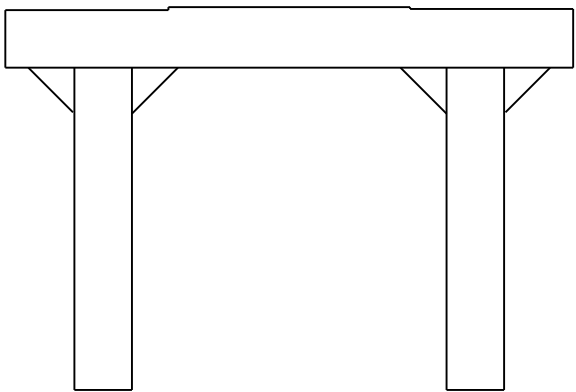
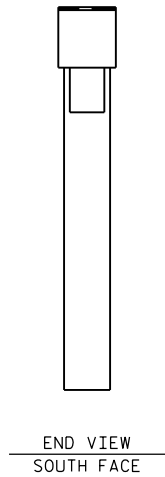
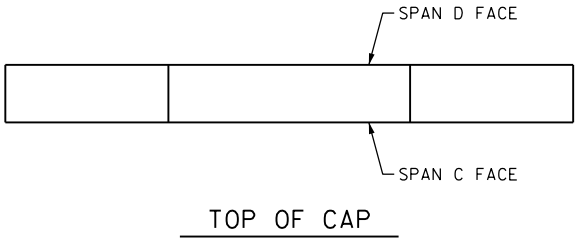
EPOXY COATING SHALL BE APPLIED TO THE TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

NO REPAIRS NOTED DURING INSPECTION BY STRUCTURES MANAGEMENT UNIT. THE CONTRACTOR AND ENGINEER SHALL INSPECT THE BENT PRIOR TO BEGINNING WORK.

SUMMARY OF QUANTITIES

REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION				
		LN. FT		LN. FT
CAP (VERTICAL FACE)		0.0		
CAP (HORIZONTAL, UNDERSIDE & TOP)		0.0		
COLUMN		0.0		
EPOXY COATING				
		SQ. FT		SQ. FT
TOP OF BENT CAP		61		

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CLEAR TO SAWCUT. SEE REPAIR DETAILS.



DAMAGED AREA

PROJECT NO. BP-5500N
GUILFORD COUNTY
BRIDGE NO. 184

SHEET 3 OF 3

DocuSigned by:
John A. Yannaccone
7BC36E9C4E04B7
NORTH CAROLINA
PROFESSIONAL
ENGINEER
SEAL
32492
JOHN A. YANNACCONI

8/18/2015

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BENT 3					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					S-33
					34

DRAWN BY : R.PIETEK DATE : 12/14
CHECKED BY : J.YANNACCONI DATE : 12/14
DESIGN ENGINEER OF RECORD: - DATE : -

NOTE

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

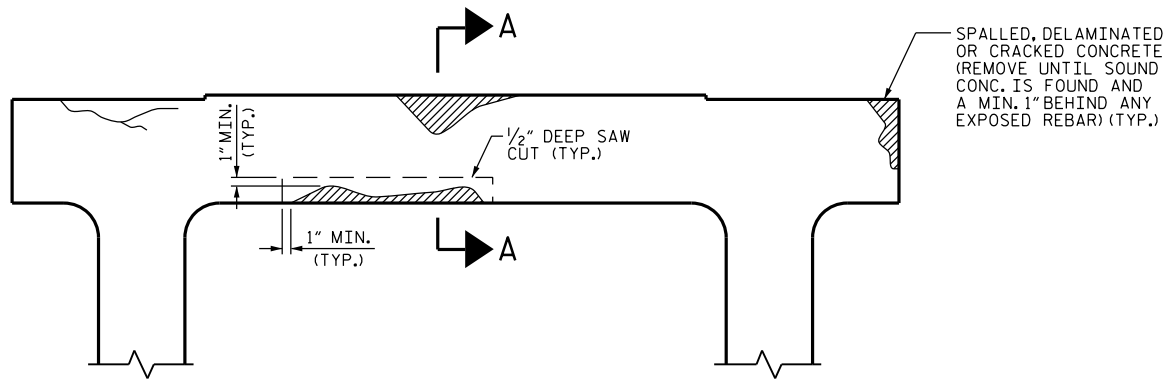
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

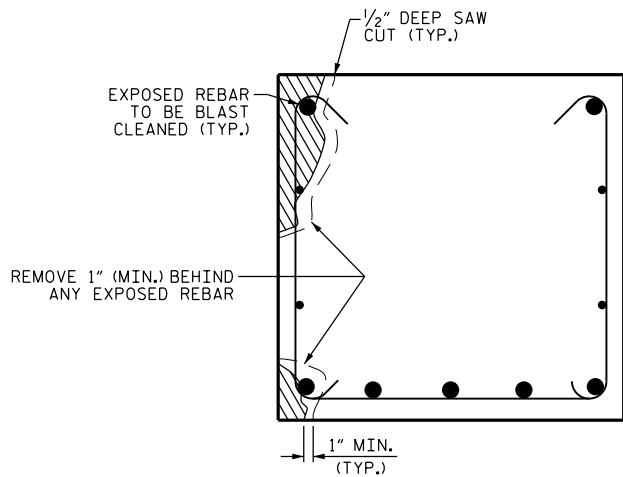
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

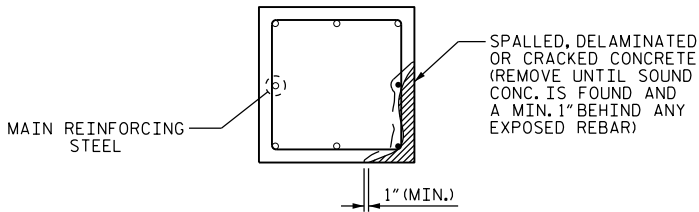


BENT CAP REPAIRS

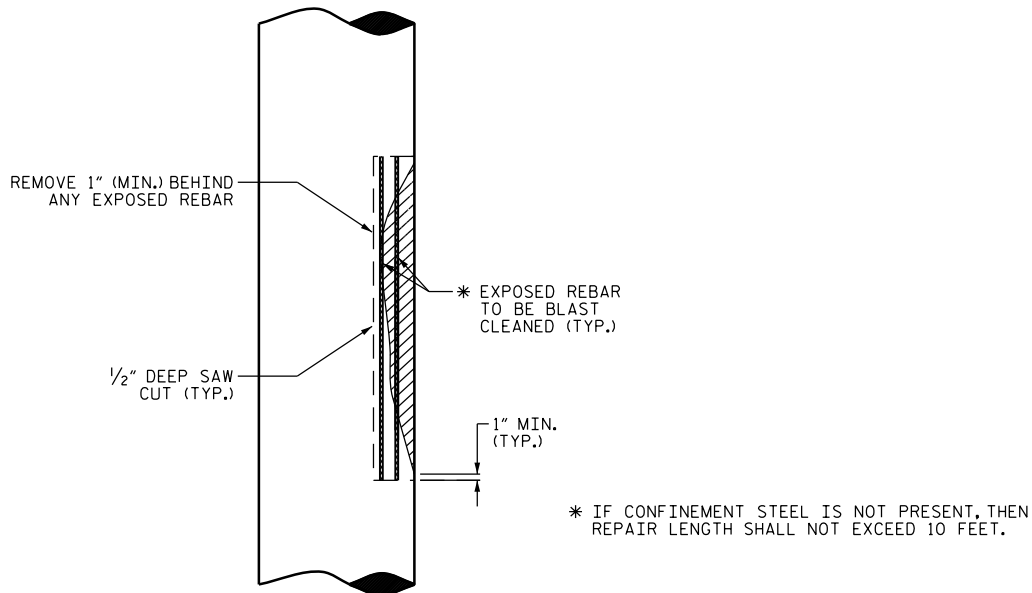


SECTION THRU CAP
(EXAMPLE ONLY, ACTUAL REBAR SIZES & LOCATIONS MAY VARY)

CAP REPAIR



PLAN OF COLUMN



ELEVATION OF CAP

COLUMN REPAIR

PROJECT NO. BP-5500N
ALAMANCE/GUILFORD COUNTY
BRIDGE NO. 42 & 184

DocuSigned by:
John A. Yannaccone
7BC36E90-5804-484C-B07E-304F504F504F
SEAL
32492
ENGINEER
JOHN A. YANNACCONI

8/18/2015

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.	
TYPICAL CAP & COLUMN REPAIR DETAILS						S-34	
REVISIONS						TOTAL SHEETS	
NO.	BY:	DATE:	NO.	BY:	DATE:	34	
1			3				
2			4				

DRAWN BY :	R. WEISZ	DATE :	11/14
CHECKED BY :	J. YANNACCONI	DATE :	11/14
DESIGN ENGINEER OF RECORD:	-	DATE :	-

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS.PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS.PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS.PER SQ. IN.
REINFORCING STEEL IN TENSION		
	GRADE 60 - -	24,000 LBS.PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS.PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	- - - - -	1,800 LBS.PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - -	375 LBS.PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS.
SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOL EXCEPTED OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.